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THE STANDARDIZATION OF THE SURGEON *

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In discussing that phase of this symposium which has been assigned to me, namely, the standardization of the surgeon, there are certain fundamental facts that must be clearly understood. In the first place, it must be determined what one means when one uses the term "surgeon." In the second place, what is to be the basis of the standardization? Elsewhere I have endeavored to define the surgeon as a member of "a profession ennobled by men actuated solely by their desire to devote their time and their talents to the relief of suffering humanity, willing, yes, glad, at any time, if need be, to lay down their own lives for those of their fellow men; whose membership should embrace only men of singleness of purpose, unselfish, high-minded, zealous in their efforts to wrest from Nature the keys to her many mysteries; men who unconsciously, perhaps, in character and conduct, reflect in varying degree the life and spirit of the Great Physician; a profession free from taint of commercialism or graft, in which there shall be no room for the base, the unscrupulous, the ignorant or the unskilled; in which the test for membership has to do only with character and attainment." Are our ideals too high? Are we striving after the unattainable? Is it worth while to make the effort?

It is quite likely that the average man, if called on to define a surgeon, would say something like this: "a man who does surgery," meaning, of course, one who devotes his time and attention exclusively to this branch of medicine. But will that definition of the term be generally accepted by the members of the profession? As a matter of fact, is it not true that a great many doctors without adequate training consider themselves surgeons, qualified to practice surgery, and actually do perform surgical operations in all cases that offer, whether major or minor? Is it not true also, that a great many patients are being operated on who ought not to be operated on? To these questions candor and the facts compel us reluctantly to answer in the affirmative. It is our duty then to try to establish at once certain standards to which a man must conform before he can rightly enjoy the distinction that belongs to the title of Surgeon.

Let us consider the following:

1. The necessary education and training preliminary to the medical course. This is a most important and far-reaching factor, the full consideration of which would of itself take a large portion of the time at our disposal. It cannot, therefore, be more than referred to in passing. What form should it take, the usual collegiate course leading up to the A.B. or B.S. degrees as at present proscribed in our colleges and universities, or a specially arranged course in which the relative proportions of the sciences, languages and the humanities would be better adjusted than at present? How large a part should training in the mechanical arts play in this new scheme? Is it necessary or advisable that the applicant for admission to the medical school should have a college degree at all, as a prerequisite to beginning the study of medicine? These and many other questions press for an answer, but their consideration at this time would lead us too far afield.

2. Medical instruction in the medical school proper, the length of time required and the particular function and form which this should assume.

3. Hospital service and apprenticeship with an older and experienced surgeon, the length of time advisable, and the character of the work to be performed.

4. The special tests to be required before the individual is allowed to practice surgery. What should be the character of this examination? Should it be theoretical or practical or both, and how thorough? Under whose authority should it be held? Who should constitute the examining board, by whom the license to practice is to be granted? How comprehensive should this license be? Should it be limited as to time of graduation and be supplemented by later and more rigid tests, or should it be a liberal and final license to practice without further review?

5. Continued supervision over the work of the individual surgeon, with power to revoke his license in case of undoubted evidence of moral turpitude or professional unfitness to continue the practice of so serious a profession as that of surgery.

All these and more are burning questions at the present time, and one cannot arrive at any sort of satisfactory or final conclusion without a thorough consideration and study of the underlying educational, moral and ethical principles. For looked at from every point of view, one cannot get away from the fact that there is a moral side to this whole question as well as an ethical and professional one. I shall attempt in my discussion of the standardization of the surgeon not to lose sight of the relative importance of these various factors. The discussion of medical education proper, and of the character of the hospital and hospital work required of the prospective surgeon will be left to those to whom these topics have been assigned.

* Read before the joint meeting of the Section on Surgery, General and Abdominal, and the Section on Hospitals at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, June, 1914.

It will be apparent at once that it is an extremely difficult matter to state any definite standard for the surgeon. What shall be the basis of this standard? Who shall be the judge? What will be the machinery by which these standards shall in the first place be set up, and in the second place enforced? Should it be by the authority of the profession itself backed up by professional public opinion, or shall it be by the authority of the state, or by a combination of the two? It goes without saying that the standards must of necessity be high, for there is no profession that demands such exacting requirements of its members as that of surgery. It can be more truly said of the surgeon than of any one else that he holds the life of his fellows in his hands. An error of judgment in diagnosis, or in execution, lack of familiarity with the latest approved methods of dealing with certain conditions, defects in technic and many other considerations, some of them apparently minor, may decide and frequently do, between a happy restoration to function or to health and a life of invalidism; between life and death. This picture is not overdrawn, as every surgeon within the sound of my voice well knows. It behooves us, therefore, as a profession, at the very beginning of a discussion of this sort, to get firmly fixed in our minds the fact that of the surgeon as of no other man, owing to the exigencies of his profession, the public has a right to demand certain requisites, namely, that he should possess physical, mental and moral qualities of no mean order, and that the ability of the individual to fulfil these requirements should be passed on by competent authority. If I read the signs of the times aright, if the profession does not willingly accede to this demand, indeed, if it does not take the initiative and itself assume control of the machinery of this supervision, the public will rise in its might, take it out of the hands of the profession, where it rightly belongs, and in all probability give another illustration of the all too common experience in our public life of foolish and extreme legislation enacted by those not competent or capable of fully comprehending the real requirements of the situation. In this way the proper abatement of abuses, and the settlement of questions, the advisability and necessity for which have been generally admitted for a long time, is not infrequently indefinitely delayed. Let us consider these questions briefly and in order, for they are fundamental to a proper conception of the subject in hand.

Every surgeon recognizes the fact that the drain that is made on his physical strength and nervous energy in the performance of his professional duties is enormous. His hours are irregular and long, his time is not his own, he must subordinate his own interests to those of his patients. The average lifetime of the surgeon is short. He cannot stand the strain beyond a certain point, and that is the breaking point. The physical aspect of the question is, however, as nothing compared with the responsibilities involved. It is these which kill. It is not necessary to do more than to allude to this fact, which is so well recognized and understood by those present. There are only a comparatively few who are temperamentally so constituted as to stand the inevitable nervous wear and tear incident to the profession. Too little attention has been paid to this fact. However, at the present time, I do not see how this aspect of the question can be dealt with by rules or by legislation or in any other way, except for the conscientious teacher in the medical school to take the time from his busy life to interest himself sufficiently in his students, to study them and know them and their characteristics sufficiently well to advise them for or against surgery as the choice for their life work. But, you say, this is not possible! It probably is not, as medical schools and medical education are constituted at the present time. But the hope for the future development of the profession does not lie entirely outside of considerations such as these. Small classes, personal association and touch with the instructors, that close communion which is so delightful between the devoted teacher and the earnest student, will go a long way toward solving this and many other difficult problems that concern either directly or indirectly the standardization of the surgeon. For it not infrequently happens that the best things that the student receives from his instructor, if he is a real teacher, are not what he gets in the class-room or laboratory, but what he absorbs unconsciously from personal contact, from observation and study of correct methods of thought and work, rather than from precept, or by word of mouth.

Among the requisites necessary for a surgeon is a certain saneness of mind, better understood than described. While now and then some erratic genius will, meteor-like, appear on the surgical horizon, a closer analysis will usually show that like the celestial visitor he shines with great brilliancy for a moment, but leaves behind him little that is tangible or lasting. In general the really constructive, original, scientific work has been contributed by the thoughtful observing surgeon, who has taken the time and given the requisite amount of study to the finding out of the causes of certain phenomena observed by him in the course of his work, or the explanation of certain problems which have hitherto baffled the efforts made toward their solution.

The examination tests, both practical and theoretical, should be prepared with the idea in view of determining the ability of the would-be surgeon in matters of diagnosis as well as treatment, in the science as well as the art of surgery. Information and assistance should be sought from the former instructors and associates of the student in order to determine, as far as possible, his fitness for the performance of the special duties required of the surgeon. As far as it is possible to do so, due weight should be given to the physical and temperamental as well as mental and moral characteristics of the applicant for license to practice surgery. Definite standards along these lines cannot be fixed, from the nature of the case, but certain unwritten ideas and ideals can and should be established and conformed to as far as possible.

What shall we say as regards the moral standards of the surgeon?

How comprehensive shall they be, and how shall they be applied? On a former occasion, I gave expression to my ideas as to the absolute necessity for standards of character, as well as ability and attainment along other lines. It would seem unnecessary on an occasion such as this and before this body of surgeons, composed, as it is, of representatives from all parts of the country, to enter into any extended argument as to the necessity for the requirement of moral tests on the part of those who desire to practice surgery. Unfortunately, the fact remains

that for some reason or other there exists in the minds of certain individual members of this Association, and, if reports are true, a not inconsiderable number, ideas and standards of professional morality so low as to permit them to indulge in certain practices which are unethical and immoral, and which tend to degrade not only those who employ them but reflect on the entire profession. I am speaking, of course, of that species of graft and corruption which is commonly known under the term of "fee-splitting," and which is practiced in a variety of forms. I am well aware of the fact that there is a difference of opinion among surgeons in different parts of the country on this question, but I have never yet heard a man excuse the practice on any other grounds than those of expediency. Every honorable man, I feel sure, condemns it as dishonest and wrong, and as tending toward commercialism and demoralization on the part of those who practice it. It is defended solely on the ground that others do it, that its existence is well recognized, that it is well-nigh universal in some localities, that some of the best men in the profession do it, that one must practice it in order to make a living; all or most of which may be, unfortunately, true. But is it right? Is it honorable? Is it honest? Should we as a profession submit quietly to such a condition of affairs even if it has the endorsement, tacit or open, of individual surgeons of otherwise good reputation and standing, or of local or state medical societies. Fraud it certainly is to divide fees with another, unknown to the patient; to take money that does not belong to you, and weakly constituted as human nature is, corruption and graft are as sure to follow such practices as night is to follow day. Not only this, but the man who will trade on the credulity and trust of his patient, when the test comes, will not always hesitate to jeopardize his patients' life and health by calling in the incompetent instead of the competent surgeon, for the sake of the rake-off.

There is another aspect, however, to this question of the moral standard for the surgeon besides the strictly professional. It must include his relationship, in a large and less personal sense, to the public. What do we find to be the actual facts in the case, for we must deal with things as they really are, not as they ought to be, if we hope ever to accomplish anything in the way of improvement? The personal relations between the medical man, whether physician or surgeon, and his patients are of such a close and intimate, we may almost say sacred character, that no breath of suspicion should taint the reputation or blight the professional life of one who would be a surgeon. He must keep his reputation as clean and his character as spotless as his instruments and his hands. If he would avoid becoming a reproach to his profession, if he would attain the fullest development of his great possibilities, the technic of his private life must be as rigorous and as flawless as that of his operating-room. Some there are, unfortunately, who in spite of flagrant and repeated violations of professional and private honor have attained a high degree of eminence. But that they have been able so to do is due solely to a deplorable lack of appreciation on the part of certain communities in particular, and of society in general, of the fitness of things, and to a disinclination to apply appropriate remedies to disordered social conditions.

As to the personal relations that should exist between patient and surgeon, surely there can be no question. As to the professional relationship, there should be room for little more difference of opinion than in case of the personal relationship, but, unfortunately, there is a decided difference of opinion. For here we are face to face with a discussion of the rights of the surgeon as against the rights of the patient. Is there any real antagonism between the two? How shall each be safeguarded? The patient on his part has a right to demand from his surgical attendant service equal at least to the best that is ordinarily rendered by other competent surgeons under similar circumstances. At once the question may be raised, "By what standards is the efficiency of service to be judged, and who shall determine the custom that prevails in any community?" Admitting the force of these questions but waiving them for a moment, observe the fact that there is also a moral side to this question as well as to the personal relation. The surgeon, if he knows anything, must appreciate the fact that he is or is not competent to do surgery. If in his heart he feels that he is not sufficiently well prepared by education or training to grapple with the many complex problems involved, it is his duty (and he cannot get away from it by any form of subterfuge) to discontinue at once its practice, until by further study and observation, under competent instruction, he has overcome the real objections to his practicing. You will say that this entails unnecessary hardship and expense on an ambitious man, and handicaps him in the race for a livelihood. True; but the good of humanity and the honor of the profession demand that only those properly qualified should be allowed to practice surgery. If under these circumstances he still continues to perform surgical operations and receive fees therefor, he is guilty of a misdemeanor in that he is receiving money on false pretenses. We all make mistakes. I am not now referring to this fact, which every one recognizes as a necessary corollary to human frailty. The true significance of what has just been said will not be misunderstood or lost in this audience, for I am sure that everyone recognizes the difference that exists between the one who habitually, from lack of sufficient training and knowledge, is making serious mistakes in both judgment and execution, and those occasional mistakes common to us all, due to the limitations imposed on us as human beings.

The same moral principle is involved in the matter of the size of the fee. The fact that one can charge and collect a fee several times larger than it should be, does not make it right. The operator, if he knows anything, knows whether or not the services rendered could have been just as skilfully and satisfactorily rendered by any one of a half dozen other surgeons in the same community. He must know too, in a general way, what others in that neighborhood charge for similar services; but if this method is unsatisfactory and the surgeon insists that he has a right to charge anything he pleases for his services, regardless of what any one else may charge, a position which within reasonable limits cannot be questioned, what then is to be the basis of his charge and what are reasonable limits? He may say, "I saved your life." But did he? How does he know? How many times can this be truthfully said? Every surgeon can recall

cases in which he has thought that the patient would surely die and then has seen him go on to complete recovery. The reverse is equally true. Who can say beyond peradventure of a doubt whether this was because of or in spite of treatment? And even if it were literally true that the surgeon had saved life, can the value of human life, of health and happiness and the other complex factors involved, be expressed in terms of dollars and cents? I think not! But the patient has a large income. True, but owing to the legitimate demands from a dependent family and relatives and other just and sufficient causes that cannot be put aside, some persons are poorer with a large income than others, without any financial obligation, are with a small income. No, fellow surgeons, if we would be true to ourselves and to the best traditions of our noble and unselfish profession, we must apply some other standards than these. We must base our charges fundamentally on more definitely tangible and determinable factors than those mentioned. We must consider such factors as previous training and special skill, and the amount of labor and time expended on our part, and the responsibility involved, and then try to adjust and accommodate these to the patient in straightened circumstances, and to keep within certain firmly established bounds in the case of the rich. This question cannot be so easily settled as by reference to a fee table; it must be based on the broad principles of equity and according to certain established standards.

It is not a pleasant task, nor an attractive sight, to wash one's dirty linen in public. But one thing is sure: if we do not perform this unpleasant duty, someone else will do it for us. Is it not high time then that we seriously undertook this urgently demanded reform? Some one, however, will ask, If this is all true, how did it come about? Who is responsible for the deplorable condition of affairs that exists at the present time? Certain it is that such a condition of affairs could exist only where standards of professional ethics and attainment are low. Is it not true that the pollution of the stream is at its source. Let us not shut our eyes to the facts. The medical schools themselves are among the greatest offenders in this respect, by reason of the failure on their part so early and so thoroughly to imbue their students with a code of ethics so lofty, a standard of honor so inflexible, with ideals so high that they are utterly incapable of becoming a party to such debasing and degrading acts as those which we have been discussing. Unless our principles of morality in its broadest sense are deep rooted and firmly fixed, and that early in our professional careers, we are in constant danger of falling when temptation comes. And who is free from it in some form or other? No, in general, our medical schools and the members of their faculties are singularly negligent of their duty, in not inculcating in the medical students under their care, by both precept and example, standards of high living and high thinking. In such soil as this, noxious weeds such as improprieties of conduct toward one's patient or professional brother, fee-splitting, self-advertising, extortionate fees and the like, do not flourish. Reforms, then, such as have been indicated, are sorely needed in the moral tone of our scho 's, and in the personal conduct and professional example set by many individual members of the various medical faculties. The same thing has been true, to a greater or less degree, in the hospitals. They have reflected the moral and educational tone of the medical schools. A stream rises no higher than its source. Thanks to the efforts of Codman and others, the standardization of hospitals is no longer regarded as the idle dreaming of a visionary, but in all probability will shortly become an accomplished fact. Make the standards of the medical schools and hospitals what they should be morally, intellectually, scientifically and with regard to efficiency, and the standardization of the surgeon will be rendered a far easier task.

There are certain ways in which these much-to-be-desired reforms can be accomplished. They can be grouped into two main classes, by the state and by the profession itself. It is at once apparent that the average legislature, composed as it is of men of all sorts and conditions, untrained and ignorant of the real needs, is not a fit body to enact laws for the guidance and government of either the profession or the public in matters of surgery, and the proper performance of surgical operations. It is self-evident, therefore, that the only proper body capable of remedying existing evils and providing an adequate and satisfactory solution of the problem involved is the profession itself. There are several agencies within the profession, any one of which might take the initiative. But there are certain obvious reasons why none of these organizations is ideally fitted to do the work. The medical schools which educate and train the future surgeons would seem to be the proper source whence such a movement should originate. But I have just indicated how little is to be expected in this direction. One has but to turn to Flexner's report to the Carnegie Foundation to find the true condition of affairs, so far as the whole country is concerned. Conditions have improved materially since that report was written, and largely because of it. But is any one foolish enough to think that any concerted course of action could or would be agreed on by the medical schools? Does any one seriously think that the necessary legislation effectively to control this deplorable state of affairs could be obtained in anything like a reasonable time? Certainly the past history of these institutions in matters of this sort does not warrant the indulgence of any such hope. No, there is nothing at the present time to be expected from the medical schools as such. Indeed, as has already been stated, they are the chief offenders in that they do not inculcate into their students in such a manner, or to such an extent, standards of morality and ethics, ideals of professional conduct that are so inbred in the student and are so much a part of his very life that after he leaves the medical school he is utterly incapable of anything but the continual practice of the golden rule. This sounds Utopian; but if the medical schools and the individual members of the faculties of those schools did their whole duty by both precept and example, there would be but little need for such a symposium as this, for the standards of professional conduct would be so high for each individual surgeon that instantly its influence would be reflected in both private and hospital practice to such an extent that unconsciously the standardization so much desired by those who have most at heart the welfare of their fellow men and of their beloved profession would be quietly and quickly brought about.

Then there is that great and powerful organization, the American Medical Association, of which this Section is one of the component parts. What of it? One has but to refer to the minutes of its past meetings to

be struck with the paucity of the recorded efforts made to bring about these universally admitted and much-needed reforms. Why this strange lack of interest on the part of the profession as exhibited in its accredited representative body? What is the reason for this apparent indifference and inactivity? Is it a spirit of self-complacency? Is it the fear of washing our dirty professional linen in public? Is it a feeling of pessimism that prompts the question "What's the use? You cannot do anything to stop it." Whatever the reason, is it right to sit still and not make at least an earnest effort to right the wrong that every one knows exists? Is it not true that whether we will or no, in this, as in every other respect that concerns his physical or moral welfare, we are "our brother's keeper?" If our professional brother does not know enough to distinguish between a patient who ought to be operated on and one who ought not to be, and if he does not know how to do the operation properly, he ought not to be allowed to operate at all; and if our lay brother does not know enough to distinguish between the properly trained surgeon and the ignoramus, he should be protected from the result of his own ignorance and folly by differentiating for him between the fit and the unfit, and by conferring on the fit some badge of distinction that the public can readily recognize.

There is already in existence an organization formed for the very purpose of accomplishing the reforms of which we have been speaking. It is as yet young, but vigorous, virile, democratic, free from all entangling alliances, willing, ready and eager to perform this all-important and so long neglected task. Indeed, it has already made its influence and power felt in certain communities and along certain lines. This is well shown by the enemies it has made. It can and will accomplish every one of these desired reforms, if only the profession is ready and willing to cooperate with it in its disinterested endeavor to do the work that is so urgently demanded. This is no time for sulking in your tent, just because you feel that the thing is not being done in your way; because the initiative was not taken by this or that organization, or because it was taken by the particular one that did have the courage of its conviction, and did make an effort to correct the evils that every intelligent member of the profession knows to exist.

I hold no brief for the American College of Surgeons. It needs none from me; and if it did, this would perhaps not be the proper place or the proper time to submit it. What it has already accomplished speaks louder than any word of mine. Nevertheless, as a member of both organizations and a disinterested well-wisher of both, it may not be out of place at this time and in this presence, to express the hope that the older society may see its way clear in the near future to modify somewhat its apparently studied policy of ignoring in THE JOURNAL and its other publications the existence of the younger organization. Would it not rather be the part of wisdom to aid and encourage by the weight of its influence and authority every effort made by any responsible, intelligent body of men directed toward the good of humanity and the uplift of the profession? This is no time for the exhibition of petty personal or professional jealousy or spite. The stake is too great! Rather let us get together like men and brothers, bound in a common cause against a common enemy to benefit humanity, to put down corruption and graft, to cleanse our professional escutcheon of the foul blots with which it is stained, to elevate the ideals and the whole tone of the profession, to encourage research and study, to increase the efficiency and to raise the standard of every individual surgeon. It would be shameful to delegate these functions to another, to have them usurped by the state, as will surely be the case through failure on the part of the profession, by reason of professional politics or petty jealousies and misunderstandings, to do what it is clearly its own duty to do, namely, to set up certain high standards of character and attainment which must be rigidly conformed to by every one who would practice surgery.

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THE SURGICAL SERVICE IN HOSPITALS*

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In order properly to treat the subject under consideration, it is necessary for us to understand just what is meant by the "surgical service" in a hospital. Naturally we think first of the operating-room, and too often the impression is left, either by writers on the subject, or by hospital surgeons or administrators, that the terms "surgical service" and "operating-room service" are synonymous. To a certain extent this is justified, for the character of the operating-room service may usually be taken as an index of the standard of the surgical service rendered in the hospital. On the other hand, while it is hardly possible for us to imagine a hospital with good surgical service in the wards, but poor service in the operating-rooms, it is perfectly easy for us to conceive of first-class operating-room service and poor ward service existing in the same institution. I prefer, therefore, to consider the subject in its broader sense as covering all surgical work done, with the operating-room work forming but one division of the service, and to my mind, not by any means the most important division. In order to bring the entire field before our view in its proper sense, let me, therefore, propound the following questions, with the suggestion that you attempt to answer them in your own minds as applied to your respective hospitals:

1. If an accident case is brought to the hospital at an inconvenient hour, the injuries including, perhaps, a compound fracture, will the staff surgeon respond to the call, how long will it take him to get to the hospital, and after he arrives, how much personal attention will he give to the care of the patient and how much will he leave to an intern?

2. Are there any patients with uninteresting fractures leaving the hospital with deformed limbs or stiff joints, and if so, does the fault lie with the surgeons, or is it due to improper nursing, or to the lack of sufficient cooperation on the part of the roentgenographer?

3. In what percentage of cases is the diagnosis clearly made in the ward and in what percentage is it reserved for the operating-table?

4. Does the operating surgeon take as much interest in the after-care of the patient as he did in the operation?

* Read before the joint meeting of the Section on Surgery, General and Abdominal, and the Section on Hospitals at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, June, 1914.

5. How large a proportion of primarily clean wounds are found to be infected on the first or second dressing, and how much time is spent by both the staff and the administration in finding out how the infection occurred?

6. What is the condition of your patients at the end of six months or a year after their discharge from the hospital, and how much attempt is made to find this out?

The foregoing questions are not asked for the purpose of disparaging the work of hospital surgeons, since their answers have to do, in many cases, with the question of the efficiency of the administration, as well as with the clinical side. Yet, they will help to bring to our minds some of the perplexing questions that affect the surgical service.

In the work of the bedside, many questions arise as to the relative responsibility of the administration and the staff. Certainly we shall all agree that the hospital officers should carefully avoid anything that might even remotely appear in any way meddlesome, or which might interfere with the surgeon's freedom in the handling of his case. Yet, there are many things which, from their nature and because of the time and manner in which they are done, can be left most safely to the administration. This will apply especially to the assignment to the room or bed, the nursing care and the attendance of the interns. If the surgeon has full confidence in the administration of the hospital, he will be glad to be relieved of these details, recognizing the fact that others can follow them up much better than he. And if he has not such a degree of confidence, he should take his patients to another hospital.

When it comes to the choice of dressing material, the kind of bandages, gauze, etc., that are to be used in the hospital, we have a question much more difficult to decide, unless there is that spirit of cooperation which should exist between the administration and staff of every well-regulated hospital. For on the other hand, we all agree that the surgeon, being responsible for the result of treatment and the recovery of the patient should be allowed to use whatever he believes necessary, within proper limits. Nor should we lose sight of the fact that hospital funds are nearly always limited, and surgeons frequently make requests without considering the expense which will result, and when the substitution of something cheaper could be made without injury to the service. Certainly, no fair-minded surgeon should deny the right of the administration to decide whether, in the ordinary routine of the hospital the dresser should use No. 2 or No. 3 gauze; nor should the administration hesitate to supply the more expensive article for a particular case if requested to do so. For here we are dealing with three very important questions, namely, the interests of the hospital from an administration point of view; the reputation of the surgeon, and—let us not forget—the interests of the patient. In order to avoid constant friction in regard to these minor questions, I would suggest that they be settled once and for all at a conference between the surgeons and the administration, at which the surgeons should be taken into the full confidence of the hospital as to the cost of materials and the financial condition of the institution, and a class of supplies selected satisfactory to all. This having been done, no further interference should be made by the staff as far as the routine work is concerned. But the administration should be ready at all times to meet special conditions when asked to do so by the surgeon, always bearing in mind that the life or health of the patient is at stake, and avoiding, as far as possible, any policy that might interfere with his interests.

There are many other questions concerning which there is sometimes a difference of opinion. For illustration, should the surgeon have the privilege of selecting the nurse who is to care for the patient; should he select the person who is to prepare his patient for operation; should a particular nurse be allowed to dress a wound or catheterize a patient at the request of the surgeon? To all such questions I would answer, No. For here we have to deal with matters with which the surgeon cannot expect to be familiar and which I believe to lie outside his province. The nurse whom he might select may be more needed for other duties, or for service in some other part of the house, or she may not be sufficiently trained, if a pupil, properly to perform the duties he would assign to her. And he, very probably, is not familiar with the curriculum of the training-school, and most certainly does not know, as well as others, how far a particular pupil has advanced, what may be her standing in her classes, or with what degree of success she has met similar responsibilities when heretofore placed on her. No one should deny his right to say whether or not the catheter should be passed, or to request that special attention be paid a certain patient, or to decide absolutely and without question what preparations for operation should be made. But with the actual carrying out of these orders or the choice of the one who is to do the work, he should have nothing to do.

The question of the proper sterilization of dressing material, sutures, water and instruments is a very delicate one, and it is somewhat difficult to decide who should dominate in the selection of the methods to be used. There certainly is no question as to the surgeon's interest in the thoroughness of this work, or in having it done in such a way that he need not fear for the results. On the other hand, the hospital is just as keenly interested as the surgeon, for the reputation of the institution and its administration is at stake, and the hospital can no more afford to allow loose methods to prevail than can the surgeon himself. Fortunately, the present-day methods of sterilization of dressing materials and instruments is so perfected that there can be but little difference of opinion as to how it should be accomplished or what methods should be used. It becomes, therefore, simply a question of proper training of those responsible for this important work, and of their conscientious devotion to their duties. And this, again, is something that must of necessity be left to the administration of the hospital, as the surgeon is, more or less, helpless in the matter without such assistance and competent cooperation. In fact, while the asepsis of everything used in the surgical service is a matter concerning which the surgeon is profoundly interested, and on which the success or failure of his work so largely depends, yet he cannot come within sufficiently close relation with the processes on which it depends to control them, nor has he the time to give this work his personal attention. It is all the more important that these matters be left in the hands of the administration when a number of surgeons are operating in the same hospital, for there

must be uniformity of methods and definite standards adopted if we are to obtain the best results, and any attempt to allow each surgeon to specify his own methods would lead to a confusion which would be fatal to good work.

In the matter of the preparation of patients for operation, I believe more latitude should be left to the surgeon, for this preparation is so important that it might almost be considered as part of the operation itself, and the personal wishes of the operator should be respected, without question. Yet, a certain hospital standard may well be adopted, if possible, and a regular routine, previously endorsed by the surgeons who are in the habit of operating in the hospital, may be agreed on with advantage, providing it is understood that care is to be taken to prevent the nurses and interns from getting too deeply into a rut, and that the ordinary usage may be changed at any time at the request of the surgeon. In the hospital with which I am connected there is a standard method of preparing patients, adopted some time ago at a conference between the surgeons and the superintendent. This is typewritten and hung in a prominent place on the various surgical stations, where the surgeons can easily refer to it. This is the "house method," and is followed whenever there are no contradictory orders issued. But whenever a surgeon wishes some special method employed, he writes his orders for such changes as he wishes made, without the slightest hesitation. This plan has been in use for about two years, and has saved much confusion and, I believe, has resulted in more thorough work, without the slightest friction.

While all that has gone before is of importance, we must admit that the greatest interest centers in the operating-room. Here we find the finest equipment, the best-trained nurses, and the clock-like precision and semimilitary discipline that appeal so strongly to most of us and leave a lasting impression on the visitor. It is here that the expert operator comes to his own, for he is the unquestioned dictator of his little realm. The tiled floor must be spotlessly white, although a tile of some other color might be just as clean. The walls must be of white marble, although a hard plaster, well enameled, is cheaper and gives a less porous surface and catches less dust. The operating-table must have many movements, and be capable of being placed in a score of positions—at great expense—although only two or three of these positions are ever used. Alcohol, iodin and other expensive drugs must be kept in large, wide-mouthed bottles, in order that they may be freely poured over every one's hands. The surgeon's every movement must be understood, every wish anticipated. Why? I am sure I do not know, unless it is that in our zeal to obtain the most efficient service in this important field, we have made the common mistake of allowing the pendulum to swing too far, and our operating-room service has become top-heavy, both in its organization and in its equipment. And, I believe, hospital administrators are more to be blamed for this than the surgeons. For the surgery is such a fascinating place, and it is such a satisfaction to show it to our visiting friends, that the temptation to magnify the importance of much of the expensive construction and equipment is one to which most of us have yielded at one time or another. Did you ever see a hospital in which thousands of dollars had been spent on marble operating-rooms, resplendently furnished with white enameled and nickeled equipment, while the mattresses in the wards were hard and cheap; or in which expensive drugs were used in the surgery as freely as was water from the taps, while patients were restricted in the quantity of milk and eggs which the institution could afford to furnish; or one in which rubber gloves were used once, then torn from the wearer's hands and thrown away, while the typhoid patients developed bed-sores because there were not enough rubber air-cushions?

I entered an operating-room not long ago and watched its workings. A very competent surgeon, rather above the average in his ability, was performing a simple herniotomy. The construction and equipment of the room had cost thousands of dollars. Assisting the operator were eight trained persons, namely, three advanced pupil nurses, two interns, the anesthetist, the supervisor of surgery and an orderly. This was not the fault of the operator. He had not asked for so many assistants, nor had he planned the operating-room. Yet it was not wholly the fault of the hospital, for there are many surgeons who demand so much attention, and who are so impatient of the slightest delay, that the average hospital is compelled to maintain too large an organization in its surgery because of the fear that some operator will have to wait too long for the threading of a needle, and that the efficiency of the surgical service will be criticized. Yet, if it be true that every unnecessary person admitted to an operating-room during an operation becomes a source of danger, then we would have had better surgery, and the patient's chance for an uninterrupted recovery would have been increased if the number of assistants had been cut in half. And, perhaps, the money invested in Italian marble would have been better spent if used in renovating the mattresses in the wards. I believe that this situation is becoming more and more realized both by surgeons and by hospital administrators, and that the time is fast approaching when much of the fussy, unnecessary and expensive equipment and organization of our operating-rooms will take its place along with the carbolic spray and bichlorid solutions, and simpler methods will be recognized. I am glad to say that the first step toward this has already been taken in our hospital, as well as in many others.

The surgical clinic is a bone of contention in many hospitals, and there is still some division of opinion, at least among the so-called laity, as to whether or not it should be allowed in a public hospital. There are many questions in this connection which will occur to those of you who have had experience with them. Are they good or bad for the hospital as a whole? Are patients often injured by them? Is the asepsis of an operating-room containing a dozen students as perfect as is the case when no one is admitted except the patient and the necessary workers? Should the superintendent of the hospital have the power to forbid the use of an individual patient for a clinic, even though the attending surgeon certifies that the patient's condition warrants it? Is the consent of the patient to his being used at a clinic sufficient, provided the patient be of legal age and rational? Should a surgeon be given the right to hold a bedside clinic in a large public ward, even with the full consent of the patient to be used, if it in any way annoys other patients in the same ward, many of

whom may be under the care of other surgeons who who are not interested in the clinics?

It is my honest opinion that properly conducted clinics, given by the right kind of men, and properly supervised, are of immense value to a public hospital. I believe that they attract to the hospital staff the best and most progressive men, and that they are a constant stimulus to all from the operating surgeon to the interns and nurses, to do the very best grade of work—if for no other reason than that they cannot afford to do otherwise. For your severest, and sometimes most intelligent critics, are found among the students of the junior and senior classes.

The important point in connection with all such clinics, however, is that they must necessarily be under the absolute control of the administration of the hospital, in every detail, for the hospital is still responsible for the care of the patients used, and for the general order of the wards, and is usually called on to furnish the necessary nurses, orderlies and interns for the proper conduct of the clinics, and to meet the expenses incurred, which are often not inconsiderable. They should very distinctly be hospital clinics, that is, they should be made a regular part of the hospital work, which the students are invited to attend, and not by any means allowed to become the clinics of any medical school, given in the wards of an independent hospital. This may at first thought seem like a distinction without a difference, but the difference is there, and it is a very important one. The foregoing does not, of course, apply to those hospitals that are under the control of a medical school or which form a part of the school organization. I refer more especially to public hospitals, the chief object of whose existence is the care of the sick, and in which clinics must always remain of secondary importance.

In conclusion, let me suggest a scheme of organization for surgical service of a large public hospital:

The staff should be divided into three ranks, namely, the chief of service, associates, and assistants. The chief should be made responsible for the work of the entire service, and should represent the service in the councils of the staff. Associates should be men competent to do major surgery, and should be required to attend the hospital every day, spending as much time as necessary to take care of the work. Assistants should be younger men, willing to do such work as may be assigned to them. They should stand in a position between the intern and the associate. They should be made responsible for the proper records on the history sheets, for orders for laboratory and roentgenographic examinations, and, in a general way "work up" the case for the associates and chief.

All patients admitted should be assigned to the chief, who should be allowed to take personal charge of the case, or reassign it to one of his associates, or assign such part of the treatment to an associate as he deems best. Operations should be performed either by the chief himself or by an associate, but no associate should be allowed to perform an operation without the knowledge and approval of his chief, except in an emergency when the chief cannot be reached. An assistant should not be allowed to operate unless he be assigned operations of a minor nature by the chief. When a patient is assigned to an associate, the chief still should remain responsible for his proper care and treatment, and should be expected to take personal charge again at any time if it seems best for the patient, as it would still be his patient.

Service in all ranks should preferably be continued. Such a service has been in operation in the Minneapolis City Hospital since last October. The staff is divided into two divisions, known as Division A and Division B, organized alike. Thus we have two chiefs of surgery, and two sets of associates and assistants, with a little friendly and healthy competition between the two divisions. Patients are assigned to the divisions alternately, in the order of their admission. The surgical specialties are in charge of the proper specialists, who rank as associates, and are responsible to the chief of surgery of their respective division. Associates and assistants are appointed by the superintendent of the hospital, on the nomination of the chief under whom they are to serve. The medical, and the obstetric and gynecologic services have a similar organization. So far this organization has been an experiment, but it has been such a success, and has resulted in such an improvement over the old rotating organization, that, with a few changes in minor details, it is to be made permanent.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. FINNEY AND COLLINS

Dr. Robert L. Dickinson, Brooklyn, N. Y.: In the study of efficiency let us note, for example, how men handle their scissors. The German does not take his eye off the operating field. The same assistant or nurse has for years given him the instrument the moment he needs it, in order that he may avoid looking away from the work, distracting his attention and wasting ether moments. Other surgeons lay down the instrument on a particular spot, to be found there, automatically by the trained hand. Unbelievably common is the practice of dropping the scissors on the instrument table, among others. When needed, the eye must leave the field of work, focus on a pile of tools, recognize the thing wanted and return to the work, perhaps hunting for a particular place in the field. At present the visiting surgeon undertakes a number of more or less related activities. Yet he cannot effectively wield these details except the surgical handiwork. Every three or four months in most of our hospitals, a new surgeon picks up a green team, saying "We will change our methods." The new régime provides no typewritten or printed instructions. By the time the group is working well together, a new leader or a different set of nurses and house officers is installed. Organized, continuous, quick, finished work is possible, under such conditions, only to genius. Therefore, the replanning of responsibility and authority must accompany the installation of a method of scoring by which work may be gauged. Who calls down the senior surgeon in a hospital and president of its staff for moderate delinquencies or mediocre results? Who knows exactly, anyway? The fielding average of a baseball player is known, and government officers regularly rate the merit and character of work of their employees. Our hospitals, on the contrary, have no system of detailed records by which to promote or withhold promotion. When once instruction cards are made out for every procedure, it is a relatively simple matter for the inspector to check up agreement with schedule and directions—allowing for emergencies. All processes of ordinary activity being standardized and written down, the instructor can be constantly at work and the teaching is not haphazard. Lapses of all kinds being matters of record, in whatever department of a man's activity they occur, the "disciplinarian" corrects, advises, rather than punishes. That business belongs to the executive committee or its representative. Scientific management involves, first, a planning department, which will have representatives from both the executive and the professional staff, to study the order of work, instruction cards, time

and cost; secondly, the performing department, with four chief functionaries—the instructor, the inspector, the disciplinarian, the repair man, and the body of workers, doctors, nurses, clerks, etc., under professional and executive control, according to their several duties. Progress is thus not hindered nor change for better methods hampered.

DR. JOHN A. HORNSBY, Chicago: In my own hospital work I have found that often there is a good deal of incoordination between the surgeon and the administration. I found that the surgeon had not the point of view of the administration of the hospital and that the administrator had even less of the point of view of the surgeon. If hospital men could meet in conference with men whose patients are in the hospital to be cared for, we might do the work a little better. That is why I asked for the benefit of a conference with this Section. Sometimes I have thought that it would be a most excellent thing for many reasons if we could have a great big war. I am quite sure if there were a great war in this country that surgical procedures would be very vastly changed. I know a surgeon who cleans up eight men for an operation; another who cleans up three nurses besides his surgical assistants, and I have sometimes wondered not only whether he is getting the best out of his work in that way, but also whether he ever thought of what these people mean to the administration of the hospital when they are tied up. In my own hospital work with 350 patients we had 24 interns and yet sometimes 16 of these men were cleaned up in the operating-rooms in the morning, and there were from 20 to 30 visiting physicians in the hospital who were entitled to some sort of intern service which it was impossible to give them. That meant four or five times three nurses in the operating-rooms for all the rooms and I have wondered whether that was what the gentlemen of the operating staff really want; whether your technic had not just grown by what it fed on; whether you had not found that it was a good deal easier to add people than it was to make any other changes. It did not appeal to you that these people were costing a lot of money, and that the whole operating force was taxing the other administrative parts of the hospital. It seemed to me that if we could talk about these things we might reach some conclusion. I am quite sure that the surgeons in any good hospital represented here, if they appreciated the fact that they were tying up all the other service of the hospital for a morning, would say, "Why, it is not necessary at all for us to have four or five men each; cut out two or three of them." Therefore I say if we had a war and military surgery had to be done we would get back to some simple principles. If the hospital surgeons could confer with the hospital administrators and appreciate some of the difficulties of administration, we could arrive at more economical methods of procedure.

DR. H. T. SUTTON, Zanesville, Ohio: I have no defense to offer for the incompetent, but I do believe we should be just as much concerned, perhaps more, about the carelessness and indifference of the men who have achieved renown, as we should about the ignorant and inexperienced and those who have not had opportunities to perfect themselves. I do not consider that there is so much difference in the intellect and skill of surgeons as there is in the conscience.

DR. JOHN M. T. FINNEY, Baltimore: With regard to the apparent misapprehension of my point of view, I may say that I should be the last one to cast any aspersions on the physician from the small town. It is just that man more than any other whom we wish to help. There are honest and dishonest men among these just as there are among any other class of physicians. The honest man we wish to help. The prime aim of the organization is to help. The dishonest men we want to put out of business if there is any way to do it. As to the degree, there also seems to be a misapprehension. All medical colleges give the degree of M.D. and we are aiming to differentiate between the degree M.D., which entitles him to practice medicine after passing the State Board, and a degree which would permit him to practice surgery. Standardization aims to prevent men from practicing surgery who only know medicine, and to try to create a class of surgeons who are competent.

TESTING THE EFFICIENCY OF THE COLLATERAL CIRCULATION AS A PRELIMINARY TO THE OCCLUSION OF THE GREAT SURGICAL ARTERIES

FURTHER OBSERVATIONS, WITH SPECIAL REFERENCE TO THE AUTHOR'S METHODS, INCLUDING A REVIEW OF OTHER TESTS THUS FAR SUGGESTED (ABRIDGED *)

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The advantages of a preoperative knowledge of the possibilities of the collateral circulation — that is, of the behavior of the peripheral circulation in the dependent regions and organs after the occlusion of the main surgical arteries — is seemingly so obvious to all those who have kept pace with the progress of vascular surgery, that to insist on the great importance and utility of the methods by which such preliminary knowledge can be obtained would seem superfluous.

Nevertheless, the majority of surgeons have up to the present time looked on the testing of the collateral circulation largely as a matter of theoretical interest, and do not attach much practical importance to the principle itself or to the tests by which it is applied. There is excuse for this in the fact that these tests are only of recent development, and have not yet found their way into the popular text-books, nor have they received that recognition by the great surgical teachers that their importance deserves.

Since the advent of the suture as a conservative agency in preserving the continuity of the large vascular trunks, a new technic in the plastics of the blood-vessels has placed a number of procedures at the disposal of the modern surgeon which were unknown to his predecessors. Notable among these resources are:

1. The ease with which a *total* can be transformed into a *partial* or *gradual* occlusion of a blood-vessel, without damage to its walls, by the use of removable metallic (aluminum) bands.

2. The possibility of restoring the lumen of a *partially* injured artery by lateral arteriorrhaphy.

3. The possibility of restoring the continuity of a *completely* divided artery by (*a*) an end-to-end anastomosis, or by (*b*) the interposition of a vascular graft (preferably venous and autogenic).

4. The possibility of utilizing the sac of an aneurysm by which a restorative or a reconstructive operation may be performed with preservation of the artery and without disturbance of the surrounding parts (endo-aneurysmorrhaphy).

The impetus given to the new technic by the success of these vascular plastics in experimental laboratories has prompted many enthusiastic surgeons, in the present generation, to resort to suture methods in practice, without a sufficient discrimination, and has led to the performance of many difficult and uncertain operations (circular suture, venous grafting and the so-called "ideal" operation of Lexer), which could have been easily dispensed with if the resources of the collateral circulation had been previously tested.

* Read before the Section on Surgery, General and Abdominal, at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* Because of lack of space this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

On the other hand, the older surgeons have been equally at fault in ignoring the value of the tests of the collateral circulation, thereby incurring serious and fatal errors in operations which could have been avoided or modified by a proper and timely application of these tests and by careful study of the resources of the collateral circulation before attempting an operation.

We have now advanced sufficiently in our methods of testing the efficiency of the collateral circulation before undertaking operations on the blood-vessels, to abandon as obsolete and pernicious the old empiric practice of trusting blindly to the admitted resources of the collateral circulation. The time has now come when every progressive surgeon must regard it as his obligate duty to investigate and ascertain, by actual tests, what the behavior of the peripheral circulation will be whenever an operation is contemplated in which the parent vascular trunk is liable to be involved. This is no longer a matter of academic or theoretical interest, but a subject of practical, vital importance in the treatment of such cases.

Will fatal coma or brain complications follow the ligation or excision of the carotid, when operating for aneurysm or extirpating a tumor of the neck? Will the limb become gangrenous when the subclavian, axillary, brachial, iliac, femoral or popliteal is ligated or excised? If such is likely to be the result, according to the tests, what is the surgeon going to do about it? These are the questions that are put to the surgeon of the present, who, with means of obtaining this information before undertaking the operation, and with new technical resources at his disposal, has to face new and graver responsibilities which did not enter into the calculations of his predecessors.

The experience of modern wars, especially those of the Russo-Japanese conflict, and the latest developments of the Balkan campaigns, have shown the enormous and growing importance of vascular injuries in military surgery. The frequency of vascular injuries, especially of traumatic aneurysms, has given this branch of surgery a claim on the technical training of the military surgeon that has become a new and salient feature in his education. But the exigencies of the battle-field and of the field hospitals will often preclude the possibility of applying such careful tests to the collateral circulation as are applicable in the more conservative and tranquil conditions of civil practice or in the reserve hospitals. Furthermore, the subjects of vascular lesions in warfare are, as a rule, healthy, vigorous, young soldiers or recruits with comparatively normal arteries, free from the ravages of arteriosclerosis or atheroma, and with sound, strong hearts. On the other hand, in civil practice, the vascular lesions which come to the surgeon are largely pathologic—chiefly aneurysms which occur in subjects past middle life, who, in addition to trauma, suffer from cardiovascular diseases, and in whom the occlusion of the main artery is liable to be followed by gangrene or other evidence of an inefficient collateral circulation. Hence the importance that attaches to the methods of testing the collateral circulation in civil is greater than in military practice, though it is interesting to note that it is to the military surgeons, Korotkow, von Oppel, Henle, von Frisch, Coenen and others who have served in the Manchurian and Balkan campaigns, that we owe a renewed interest of late, in Europe at least, to the methods of testing the collateral circulation.

Now what are these methods or tests? They may be briefly summarized as follows:

1. *Quenu and Muret Sign.*—The bleeding of the peripheral parts on puncture or incision while the main trunk of the limb is being compressed. In discussing the treatment of popliteal aneurysm, Quenu and Muret[1] say:

> To verify this sufficiency of the collateral circulation, which is so important, there would be, in our opinion, no objection to expose and cut into the dorsalis pedis artery at the time of the operation, and thus determine if the compression of the popliteal above the sac will be followed by bleeding or a suppression of the circulation in this artery.
>
> [If no bleeding follows the compression of the main artery, it will indicate an insufficiency of the collaterals.]

The fallacy underlying this test is that the pedal pulses (dorsalis pedis and posterior tibial) are often totally suppressed in popliteal and other aneurysms of the lower extremities, and that scant, if any, hemorrhage will occur from the peripheral vessels, and yet the nutrition and circulation of the foot are well preserved, even though weeks and months may have elapsed after the pulses have been lost. In these cases the circulation and nutrition of the peripheral parts are well preserved by impalpable collaterals after the main channels of the circulation have been blocked by pressure, thrombosis, embolism or atheroma. Furthermore, apart from the importance of avoiding open trauma in the peripheral parts, in which the circulation is most likely to suffer, it is desirable that the sufficiency or insufficiency of the collateral circulation should be determined long before an operation on the aneurysm is performed, in order that suitable measures may be applied to develop the insufficient collaterals. Finally, this mode of demonstrating the persistence of the collateral circulation is unnecessary, as there are other means of determining quite clearly the resources of the collateral circulation without injury or sacrifice of the peripheral vessels.

2. *Delbet's Sign.*—The formation of an aneurysm, or a tumor in the course of the main artery of a limb, is often followed by the gradual or sudden obliteration of the peripheral pulses. When this occurs, from any cause (mechanical compression, thrombosis, embolism or atheroma) without apparently affecting the nutrition or vitality of the extremity, it may be concluded that the collateral circulation has been fully established and that the obliteration of the main trunk by operation can be undertaken with safety to the dependent limb.

This observation has been so well confirmed by experience that it deserves special recognition as of decided clinical importance. Pierre Delbet has so frequently and lucidly interpreted the significance of the suppressed peripheral pulses in this condition that the combination — aneurysm or tumor, absent peripheral pulses, living limb — may well be designated as Delbet's sign.[2] Arrou, Ricard, Monod and Vanverts[3] and others likewise insist on the value of this sign, and my experience has been so convincing that I believe it deserves more prominence than has been given it by systematic writers on the subject.

1. Quenu and Muret: Le traitement moderne des anevrysmes artérielles poplitées, Rév. de Chir., 1910, xli, 282.
2. Delbet, Pierre: Extirpation d'un anevrisme poplite, guerison, Bull. et mém. Soc. de Chir., 1909, xxxv, 13.
3. Monod and Vanverts: Chirurgie des artères (Rapport au xxii Cong. Franç. de Chir.), Paris, 1909; Le traitement conservateur des anevrismes et des hematomes, Rev. de Chir., November, 1911.

In dealing with arterial and arteriovenous aneurysms there are many conditions in the aneurysm itself and in the peripheral arteries which are very suggestive and permit the experienced surgeon to foresee, without the application of any special test, the behavior of the peripheral parts after an obliterative operation on the main artery. While the consideration of these conditions would involve too great a digression from the main object of the present discussion, and while recognizing the fallacies that underlie an *a priori* interpretation, it is nevertheless quite evident that the more active an aneurysm, the more rapid its growth, the more expansile its pulsations, the louder its bruits, the less clot it contains, and the more palpable and vigorous the peripheral pulses beyond it, the more cautious should we be in our preparations for attacking it; the more certain should we also be to apply the tests that will give us additional and more positive information in regard to the status of the collateral circulation after its obliteration.

3. *The Henle-Coenen Sign.*—Henle's sign, originally described by Professor Henle[4] of Dortmund, Germany, and by his assistant, Stoltz,[5] was also independently described by Coenen[6] of Breslau, as the result of his experience in the Balkan campaign. It is applicable only in the field of operation when the injured artery is exposed above and below the lesion, or when the sac of an aneurysm is laid open with its proximal and peripheral openings exposed. If blood flows from the peripheral opening in the aneurysm, while the proximal end is compressed with a clamp, it is presumed that the collateral circulation is sufficient.

4. *Von Frisch's*[7] (Vienna) *Three Signs* are the outcome of his experience in vascular surgery during the recent Balkan campaigns. Von Frisch's test is also applicable only in the field of operation. According to this observer, if the proximal side of an injured or denuded vessel is compressed, the efficiency of the collateral circulation may be demonstrated by the following three signs:

(*a*) Normal, or approximately normal, coloration ("living color") of the periphery. (This sign had been previously insisted on by me.)

(*b*) Arterial hemorrhage from the peripheral opening of the injured vessel. (This is only a repetition of the Henle-Coenen sign.)

(*c*) Venous stasis below (peripheral side) of the clamped main vein (von Frisch).

This third sign is the one on which von Frisch lays particular stress and claims as an original observation.

If, after clamping the main artery, compression of the satellite vein is followed by dilatation of its peripheral tributaries, and the venous turgescence is repeated clearly and unmistakably every time the experiment is tried, the sign is positive that a sufficient collateral circulation exists. This sign (venous stasis on compression of the parent vein) may prove decisive when the other two fail.

He believes that Sign 1 is distinctly positive, no other proof of a collateral circulation is required, and with this I agree. He regards the Henle-Coenen sign as fallacious and liable to erroneous interpretation, as the distal ends of the wounded artery may spurt in the wound and yet no blood reach the periphery. In this I also thoroughly agree. When all these signs fail, then it is plain that the collateral circulation is inadequate and that circular arteriorrhaphy, with or without venous grafting, is in order. If all three are present, or No. 1 and No. 3 separately, no arteriorrhaphy is required; but a simple obliterative ligation will be sufficient.

The signs and tests described by von Frisch (which include the Henle-Coenen sign) are undoubtedly valuable in emergencies. Practically the same observations have been utilized in my practice, and theoretically by others in a different way; but since they are applicable only in the course of the operation, their preliminary and prophylactic value is lost. They are of value in dealing with wounded bleeding arteries, but, even in the emergencies of the battle-field or field hospitals, an effective application of the technic of circular arteriorrhaphy (which von Frisch has in mind) is almost impossible. When fully established aneurysms exist, whether arterial or arteriovenous, it is evident that the chief benefit of the tests of the collateral circulation is to be obtained before any operation is performed and not during the operation itself, when the operator has no alternative but to proceed with the operation to a finish, whether the collateral circulation is shown to be efficient or not. According to v. Frisch, if the collateral circulation should prove to be insufficient, all that the surgeon could do would be to extirpate the sac (if this exist) and proceed with circular anastomosis, with or without the interposition of venous grafts—a very uncertain and problematic conclusion.

Our aim in testing the collateral circulation is to avoid complicated and uncertain operations by the testing, whenever possible, in anticipation of the operation, by means that will furnish the information without trauma, and that will permit of postponement of the operation in order to apply such prophylactic measures as will develop a sufficient collateral circulation.

5. *Korotkow's Test* (St. Petersburg, 1905-1906) depends on tonometric and sphygmomanometric measurements of the blood-pressure in the peripheral parts. It is the result of this distinguished surgeon's experience in the Manchurian campaigns, and has been adopted by von Oppel, Petrov, Fedoroff and other Russian surgeons, being especially brought into prominence by von Oppel[8] in 1908. If the peripheral blood-pressure, as shown by the manometer (a modified Gaertner's tonometer) is more or less sustained after compression of the main trunk immediately above the aneurysm, then the collateral circulation is adequate and the artery or the aneurysmal sac may be extirpated or obliterated. If, on the other hand, the blood-pressure falls to zero, it is evident that the collateral circulation is inadequate and that no chance should be taken with an obliterative operation, or with any procedure whatever (ligation, extirpation) which will possibly occlude the parent artery. The color reaction in the individual digits, which is the basis of the tonometric test, is of very difficult demonstration in cyanotic or pale extremities, especially in the deformed toes of many subjects—negroes particularly. After repeated trials in the lower extremities I have been compelled to abandon it as impracticable and to substitute for it a color test on a much larger scale and of far easier application, which will be subsequently

4. Henle: Zur Indikationsstellung bei der Operation der Aneurysmen und bei den Gefassverletzungen, Centralbl. f. Chir., 1913, No. 3, p. 91; Verhandl. deutsch. Chir. Gesellsch., 1912.

5. Stoltz, K.: Eine Indikation zur Wahl der Operationsmethode bei Aneurysmen, Beitr. z. klin. Chir., 1914; lxxxviii, 452.

6. Coenen, H. (Breslau): Zur Indikationsstellung bei der Operation der Aneurysmen und bei den Gefassverletzungen, Zentralbl. f. Chir., 1913, No. 50.

7. Von Frisch: Zur Indikationsstellung bei der Operation der Aneurysmen und bei den Gefassverletzungen, Zentralbl. f. Chir., 1914, p. 89.

8. Von Oppel: Arch. f. klin. Chir., 1908, lxxxvi, No. 1.

described. E. Wolff[9] of Lexer's clinic, Kruger[10] of Riedel's clinic and Tcherniachowsky[11] of Kiev all agree on the difficulties and uncertainties of the original Korotkow test.

6. *Pachon Test.*—On the same lines as the Korotkow test is the application of the Pachon oscillometer, which depends on the records of the blood-pressure in the peripheral parts to determine the existence of the circulation in these parts after the temporary occlusion of the main artery. The Pachon oscillometer has been applied to the exploration of the permeability of the arteries in senile and other forms of peripheral gangrene, with the view of determining the proper line of amputation, and has done satisfactory service in the hands of Guyot and Jeannenay,[12] Bordeaux, and has been utilized by Cowadias[13] in the study of aneurysms, and very lately by Gosset,[14] Paris. In a case of traumatic arteriovenous aneurysm of the right subclavian vessels, recently reported by this surgeon, extirpation of the sac, with the quadruple ligation of the artery and vein, was followed by recovery. Gosset utilized the oscillometer of Pachon to test the peripheral circulation in the hand and arm. The arterial tension, on the day before the operation, was 10 on the affected side; 15 on the normal. On the night following the operation, the ligated side registered 9. Thirteen days after the operation the oscillometer registered 12, showing the reestablishment of the collateral circulation, though the peripheral pulses could not be felt.

My experience with the Pachon instrument is too limited and too recent to permit at present of a fair statement of its value; but it is well worthy of consideration and further investigation.

7. *The Tuffier and Hallion*[15] *Test* is based very much on the principle of von Frisch's venous turgescence when an obstruction is placed in the way of the returning venous circulation while the main artery is compressed. Their test is applied as follows:

A circular band, or elastic cord, which may be easily tightened or relaxed, is made to encircle the extremity at the part desired, for instance, at the ankle joint above the malleoli when the foot is under observation. If this band is tightened, it will compress the veins and thereby interfere with the returning circulation, causing a marked venous turgescence and swelling of the foot; the flow through the arteries will not, however, be interfered with. If this maneuver is repeated while the main artery of the limb (femoral) is compressed, the veins of the foot will swell only on condition that sufficient arterial blood is brought to the foot by the collaterals. If this venous turgescence does not occur, it is plain that there is no collateral circulation, and, vice versa, if swelling occurs it is also evident that the arterial collaterals are efficient. This method was applied by the authors in a case of popliteal aneurysm with a voluminous sac. The object of the experiment was to determine whether the limb would survive an extirpation of the sac with the ligation of the main vessel, or if, in default of a collateral circulation, a circular arteriorrhaphy would be required.

The chief fallacy of this method lies in the fact that in any case of aneurysm or injury to the blood-vessels of extremities, there is already a considerable edema and venous stasis of the limb from obstruction to the veins and lymphatics on a level with the lesion, and that the accurate observation of the swelling or venous turgescence, in such cases, is not only difficult but impossible. Its usefulness is, therefore, limited to certain favorable cases; but it will be worth remembering in connection with other tests.

8. *Prof. G. N. Stewart's*[16] (Cleveland) *Calorimetric Method* of estimating the quantity of blood circulating through a part in a given period of time is especially applicable to the extremities (hands and feet). It depends on the fact that the amount of heat produced by a part, like the hand at rest, is negligible in comparison with the heat conveyed to it by the arterial blood. If, then, we determine the amount of heat given off by the hand to a calorimeter, in a given time, and know the temperature of the incoming (arterial) and outgoing (venous) blood, we can calculate how much blood must have passed through the hand in order that it might give off this amount of heat. The quantity of heat given off is estimated by putting the hand or foot into a calorimeter specially constructed for the purpose. The quantity of blood in grams flowing through the extremity in the time of the experiment is given by the formula: $Q = \frac{H}{T - T^1} \cdot \frac{1}{s}$ where Q is the quantity of blood, H the heat given off by the hand, T the temperature of the arterial blood, T^1 the temperature of the venous blood and s the specific heat of blood.

The importance of this method in determining the vitality of the peripheral parts after the temporary obstruction of the main artery of the limb, and thereby testing the sufficiency of the collateral circulation in the extreme periphery, is obvious. It is evident that since the amount of blood circulating in the extremity is gaged by the degree of heat registered by the calorimeter, the amount of actual circulation in the part can be very approximately estimated. For instance, in a successful ligation of the innominate for subclavian aneurysm, recently reported by Dr. Carl Hamman of Cleveland, the patient was subjected to the calorimetric test by Stewart himself. Six months after ligation of the innominate it was found that the blood flow on the affected side was equal to over 8 gm. per hundred c.c. of hand per minute, which is as great as that of the normal hand. This was a great improvement over the rate of blood-flow observed two months previously, when the flow in the right hand stood as 1:3.5. At the last examination in July, the rate of flow stood at 1:1.3, which is practically equal in both hands.

This observation is in itself quite convincing of the value of Stewart's calorimetric method in showing, first, the precise condition of the peripheral circulation before the occlusion of the main trunk, and thereby showing the efficiency or inefficiency of the collateral circulation; second, it also permits the observer to determine the further development of the collateral circulation, and third, it also permits the differentiation between disturbances in the peripheral circulation that are due to vascular or to non-vascular (neural) causes.

9. Wolff, E.: Beitr. z. klin. Chir., 1908, lviii, No. 3.
10. Kruger: Arch. f. klin. Chir., 1910, xci, Nos. 2 and 3.
11. Tcherniachowsky: Deutsch. Ztschr. f. Chir., 1913, cxxiii, 1.
12. Guyot and Jeannenay: L'Oscillomètre sphygmomanométrique de Pachon appliqué à l'exploration de la permeabilité artérielle dans la gangrène, Communication à la Société anatomo clinique de Bordeaux, Séance du 5 Juin, 1913, Jour. de Med. de Bordeaux, 1913, lxxxiv, 607; Jour. de chir., 1914, xii, 193.
13. Cowadias, A.: Etude comparative des tensions artérielles des deux membres supérieurs et inférieurs; applications cliniques dans les anevrysmes aortiques et les artérites des membres inférieurs, Soc. de Biol., Séance 7 Dec., 1912; Semaine méd., 1912, No. 51, p. 611.
14. Gosset: Bull. et mém. Soc. de Chir. de Paris, Dec. 24, 1913, p. 1794.
15. Tuffier and Hallion: Sur un procédé permettent de prévoir que l'irrigation sanguine persistera dans un membre après ligature de son artère principale, Soc. de Biol., Paris, Séances 7 Dec., 1912; Compt. Rend., Semaine méd., 1912, No. 51, p. 610.
16. Stewart, G. N.: Studies on the Circulation in Man, Harvey lectures, series 1912-1913, p. 150.

We must therefore regard Stewart's method as a distinct acquisition and a decided progress in the methods of determining the efficiency or inefficiency of the collateral circulation. Its value as a practical test in deciding on the indications for either the obliterative, reconstructive or restorative operations must be accepted as proved. To what extent this typical laboratory method can be utilized clinically in surgical practice cannot be determined at present. It is evidently not applicable to emergencies or to the demands of routine surgical practice; but as an addition to the surgical resources in well-equipped hospitals in large cities, working in connection with physiologic laboratories, such a method may render very effective assistance in practice. In its present form, its use must be exceptional and it must yield to other simpler methods that are immediately available, and that have been found practically reliable in my practice.

9. *The Author's Methods.*—Finally, I would renew attention to the simple methods of testing the collateral circulation which I devised in 1907 and have adopted in my practice since that time with increasing conviction in their reliability, simplicity and general utility. These tests I have found to be of the greatest value in determining the indications for my obliterative, restorative and reconstructive operations for the cure of aneurysm, and no patients are now operated on in my clinics without a preliminary and systematic study of the circulation by means of these tests. These methods involve two procedures, according to the region involved and the artery to be tested:

(*a*) The first is the hyperemia reaction, or living color test, suggested by Moszkowicz'[17] (Vienna, 1907) method of determining the limits of the living tissues in actual or threatened gangrene of the extremities, caused by arterial disease or obstruction, preparatory to amputation. While the purpose and technic of Moszkowicz' and my procedures are entirely different, they are similar in utilizing the hyperemic blush that follows an artificial ischemia in determining the limits of an adequate circulation. This test is reserved for the extremities, and is applicable to the limbs wherever it is possible to compress the main or parent artery of the limb, preferably with a mechanical compressor of the type of my own devising, which exercises pressure on the main vessels with the least possible interference with the collateral circulation. The principle on which this test is applied is based on the fact that if the main trunk is compressed in close proximity to the lesion (wound, aneurysm, tumor) sufficiently to arrest the pedal pulses, or "still an aneurysm," the distal parts can be supplied with blood only through the collaterals. In order to make this test more effective and demonstrative a complete ischemia of the limb is obtained, before the compressor is tightened on the main artery, by applying an elastic bandage (Esmarch) from the digits (and including these) to the level of the lesion, usually an aneurysm. Then the compressor is adjusted until the aneurysm is absolutely stilled by firmly compressing the parent artery, and the elastic bandage is allowed to remain *in situ* for ten minutes in young subjects, and five or six minutes in the aged. The bandage is then removed while the main artery is completely occluded, as shown by the collapse and stillness of the aneurysm. Immediately on the removal of the bandage, a hyperemic blush descends rapidly down the limb, and progresses onward to a variable extent, usually in proportion to the development of the collateral circulation. More often, the hyperemic wave stops, even in healthy adults, at a distance of 5 or 6 inches from the compressor, or about one-fourth the distance down the limb from the level of the compressor. It then continues, in a subdued color and with irregular distribution, to travel toward the periphery; but the extreme end of the limb, foot or hand, and especially the digits, retain a cadaveric, waxy, lifeless pallor for several seconds, which may be prolonged to ten or forty minutes or even longer, according to the development of the collaterals. Then the waxy, bloodless color changes in patches to a pale, but living color, which appears in various preferred areas, and gradually spreads uniformly and more or less intensely over the limb. In cases in which the collateral circulation is unusually developed, the hyperemic wave spreads in a few seconds throughout the whole limb as if the main artery had never been compressed. If the compression is kept up long enough, there may be a temporary congestion, mottling and marbling of the skin, which is due to the simultaneous compression of the main vein. This is an additional sign that an efficient collateral circulation exists, as the veins could not become turgid without blood supplied by the collaterals. Thus far we have applied this test to over twenty-six cases of aneurysm and other lesions in our clinics, exclusive of those observed by other surgeons in the United States and abroad, and the conclusions furnished by this test have been invariably confirmed by the operative demonstrations and results. In several of these cases the reaction has been so long delayed that operative interference has been postponed for days and weeks in order to develop the collateral circulation by systematic compression of the main artery applied conjointly with dry hot air baths and vigorous massage of the extremities, as well as resorting to other measures calculated to increase the blood-pressure. In this way a decided shortening in the period of cadaveric pallor during compression of the main artery has been obtained, sufficient at least to justify confidence in the efficiency of the circulation and in the safety of the operation.

(*b*) The second test is based on the preliminary occlusion of the main artery with the pliable and removable aluminum bands first described in 1911 in a joint communication[18] to THE JOURNAL by Dr. C. W. Allen and myself. It is applicable to all arteries of the neck and trunk which cannot be effectively occluded by mechanical compression. With the valued collaboration of my assistant, Dr. C. W. Allen, and other members of our staff, Drs. Gessner, Maes, Cohn and Landry, we have applied these in our clinics to all the great arteries of the neck and to the iliacs. At present we advocate the preliminary application of these bands in all cases of aneurysms or tumors involving the innominate, carotid, subclavian and iliac arteries. If after total occlusion of the artery the peripheral circulation remains good, nothing further is done, and often the aneurysm is cured by this simple method. The band then remains permanently encysted in the tissues as a ligature. If there are evidences of a defective circulation which makes permanent cerebral disturbances probable, when the common or inter-

17. Moszkowicz: Diagnose der Arterien verschluss bei Gangrena Pedis, Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1907, xvii, Nos. 1 and 2.

18. Matas, Rudolph, and Allen, C. W.: Occlusion of the Large Surgical Arteries with Removable Metallic (Aluminum) Bands, to Test the Efficiency of the Collateral Circulation, THE JOURNAL A. M. A., Jan. 28, 1911, p. 233.

nal carotid is involved, or when in the limbs permanent ischemia and gangrene are threatened, especially in the lower extremities, the band is relaxed just sufficiently to restore a living color to the periphery, the vessel remaining then only partly occluded. This procedure will diminish the activity of the circulation in the aneurysm and by gradual obliteration often lead to its cure, as originally and very clearly demonstrated by Professor Halsted.

These aluminum bands as supplied by our local manufacturers[19] are of standard length (6 inches) and of the same thickness (23 Brown and Sharp's metal gage). In width there are three sizes: 5/16 inch (approximately 8 mm.); 1/4 inch (about 6 mm.); 3/16 inch (about 4 1/2 mm.). In practice I have found that the 5/16 inch band, 23 B. & S. gage (approximately 1/2 mm., or exactly 0.573 mm.) is most generally applicable and useful. This approximates closely the width and thickness of the normal superficial femoral at its origin, and of the common carotid, as given by Ballance and Edmunds[20] in their accurate scale of measurements. The bands are cut long enough to be used as an aneurysmal needle; they are pliable and easily bent and curved in the shape of a flat hook, which can be readily insinuated between the blood-vessel and its sheath. After the band has been carried around the circumference of the vessel, it is generally compressed by the fingers of the operator until the pulse on the distal side becomes imperceptible. The excess of band which remains is cut off with stout scissors, or preferably with small wire clippers. The bands are now supplied by the dealers, perfectly smooth, polished and rounded at the edges, ready for immediate use after sterilization. Should it become necessary to remove the band, or relax its grip so as to allow a partial circulation, on account of ischemic disturbances in the region supplied by the occluded vessel (as when cerebral disturbances occur after occlusion of the common carotid), the point of a sharp instrument or blade of knife is inserted between the approximated ends of the band, which, when slightly twisted, accomplishes the separation and releases the vessel, allowing the circulation to be restored. When no disturbances occur in the peripheral circulation, the band remains permanently embedded in the tissues, where it is encysted in a fibrous sheath. The bands are always well tolerated by the tissues and primary healing is the rule. Even when suppuration has occurred, the tissues have healed over them permanently and satisfactorily. When cerebral disturbances, or evidences of dangerous ischemia in the peripheral parts, call for a partial or total restoration of the vascular lumen, this may be safely attempted after a total occlusion of fifty-six or seventy-two hours' duration, because no permanent damage will be inflicted on the arterial wall in that time, provided the band has been applied with proper care to avoid a crushing or contusing force.

In a joint contribution with Dr. C. W. Allen, read in this section at the St. Louis session of the American Medical Association (June, 1910), we briefly reported fifteen cases in which these bands had been applied, chiefly to the carotid and subclavian arteries, and mentioned two in detail in which cerebral symptoms developed in one immediately, and in the other several hours after the application of the band. In both instances prompt relief followed after reopening the wounds and releasing the constriction on the vessels. Since then our experience has increased considerably, and recently one case has been under observation, that of a patient suffering from a traumatic pulsating exophthalmos, on whom my associate, Dr. Gessner, had attempted relief by occlusion of the common carotid on the affected side.

In the patient, a man of 45 years, stupor and hemiplegia with loss of vision developed four hours and thirteen minutes after the occlusion of the artery. Nearly two hours after the onset of these symptoms the band was removed by Dr. Gessner without anesthesia. Following an initial convulsion the patient emerged from the stupor and regained consciousness. The next day he was well, but the pulsating exophthalmos returned. Oct. 13, 1913, the same patient returned to our clinic, seeking relief for the exophthalmos, loud intracranial noises, pulsation of facial veins, etc. By adopting a course of systematic digital compression, under our instruction the patient trained himself to tolerate by prolonged sittings an occlusion of the common carotid so successfully that in five weeks his symptoms were completely controlled without ill effects. Accordingly on Nov. 21, 1913, a second occlusive aluminum band was applied, this time with perfect success and without cerebral disturbances.

Nine months have now elapsed since the band was applied, and thus far nothing has occurred to suggest a relapse. This case, therefore, is instructive in again proving the value of a removable aluminum band as a prophylactic against fatal cerebral complications. It is also a most convincing demonstration of the efficiency of systematic compression of the common carotid as a means of developing the collateral circulation in the brain, and thereby establishing the tolerance of the common carotid to permanent occlusion; the same method applied to this patient, without such training and preparation, would have certainly failed, ending in his death if the band had not been promptly removed.

Very recently we have had an opportunity to prove the value of these bands in testing the collateral circulation in the lower extremities. These were two cases of iliofemoral aneurysm which occurred in advanced nephritic patients with marked general arteriosclerosis. The aneurysms encroached too much into the pelvis to permit of any testing by the methods of mechanical compression previously described. The aneurysms were very active and growing to such voluminous size that rupture threatened. The nephritis in both cases made a general anesthesia by any method dangerous. Furthermore, neither of these patients could have survived a radical operation under general anesthesia. In both cases local anesthesia was sufficient to expose entirely the external iliac up to its origin in the bifurcation by stripping the peritoneum. In each case a band was placed on the external iliac about an inch below the bifurcation of the common iliac and a little above the upper pole of the aneurysm. The artery was occluded completely and the effect on the peripheral circulation was carefully watched. In one case, the living color of the foot and digits returned after a marked pallor of twenty minutes duration; the pedal pulses, which were faint before the operation, remaining permanently obliterated.

19. McDermott Surgical Instrument Company, 734-738 Poydras Street, New Orleans.

20. Ballance and Edmunds: Ligation of the Arteries in Continuity, London, 1891. In accordance with this scale of measurements the bands for the common carotids should be 8.5 mm. in width and 0.78 mm. in thickness; for the common femoral, 10 mm. in width and 1.1 in thickness; the superficial femoral, 8 mm. in width and 0.72 in thickness. We have used the bands made for the common carotid on the iliacs, femorals and subclavian with equal success and believe that they will do as well for all the large arteries, including the innominate and common iliacs. We do not recommend metallic bands for the aorta except for purely temporary purposes.

In the other patient the pallor of the extremity continued for an hour, but was finally restored by vigorous massage and hot applications. After this, the recovery in both cases was uneventful. The aneurysms collapsed, hardened and contracted, so that, when these patients were discharged, six and eight weeks, respectively, after the operation, the tumors had been reduced to one-fourth their original size. One of these patients has since died at his home in Alabama, in uremic coma, but the reports received indicate that the aneurysmal tumor had at no time troubled him after he returned home. The other patient is still living, but growing rapidly worse with his nephritis, though the aneurysm has practically disappeared and is giving him no trouble. Reports of these cases will be published in detail in a study of a group of iliac aneurysms that I have in preparation.

The use of aluminum bands as occlusive or constricting agents in the surgery of the blood-vessels, as first suggested and practiced by Prof. William Halsted,[21] marks a distinct period in the history of vascular surgery. Our purpose and technic are different from Dr. Halsted's, but whether the aluminum straps are applied as circular bands with the ingenious band roller that Dr. Halsted devised or as flat bands which we (Matas and Allen) have found advantageous to substitute for it with the very simple technic that is here described, there can be no question that the occlusion of the large surgical arteries, with the possible exception of the aorta, is infinitely superior by the band to any of the methods of temporary occlusion hitherto described and recommended (Jordan, Doberauer, Neff, Crile, Smäler, Bordach).

I have dwelt sufficiently on these methods in previous communications[22] to this section of the American Medical Association, to the American Surgical Association and last year at the International Medical Congress in London, so that it is unnecessary further to discuss the technic of these procedures, which are fully described and illustrated in my several papers, and also in those contributed by Drs. C. W. Allen,[23] H. B. Gessner,[24] Urban Maes[25] of my staff.[26]

In closing this discussion on the methods of testing the collateral circulation, I would briefly state that the chief requirements for the general and successful application of these tests are:

(*a*) Simplicity and ease of application.

(*b*) Reliability in furnishing a fair and dependable information for clinical purposes.

(*c*) That the test may be applied with a minimum of trauma to the blood-vessels and the affected parts.

These requirements are met, I believe, by the two methods which I have suggested and have learned to rely on, after a very considerable experience. I do not hesitate to recommend them to my colleagues and fellow workers. They will also find, in the suggestions from other sources quoted in this paper, excellent material for obtaining a preoperative information on the condition of the peripheral circulation.

It is well understood that in emphasizing the importance of a preliminary knowledge of the condition of the collateral circulation, I do not pretend that it is possible in every case to apply these tests, or that, even after obtaining the desired information, we can always escape from disaster. It should be remembered that every injury of an artery, especially if diseased, no matter how trivial or insignificant it may appear to be, may lead to fatal thrombosis or embolism, though the collateral circulation may appear to be efficient, as shown by the tests. It has been my good fortune to have escaped such an occurrence in my practice; but it is easily conceivable that at any time such an accident may occur, in spite of every precaution.

Finally, all methods of investigation which furnish reliable *preoperative* information on the status of the collateral circulation are valuable.

(*a*) In avoiding unnecessary or possibly disastrous operations.

(*b*) In delaying dubious or dangerous operations, until the patient has been given better opportunities to develop the defective circulation.

(*c*) In shaping the course of an operation, so that a simple and comparatively inoffensive procedure may be substituted for a more complex, risky and uncertain undertaking that the tests have shown to be unnecessary.

(*d*) In preparing the operator himself for contingencies that may arise in the course of the operation, and that the tests may lead him to expect.

(*e*) In furnishing the operator with far better elements of prognosis in vascular lesions than he has ever had before, or that he could ever have without them.

Again, to learn how to gage the condition of the collateral circulation in vascular surgery, is only to emphasize the old saw, "To be warned, is to be forearmed."

2255 St. Charles Avenue.

21. Halsted, W. S.: Partial, Progressive and Complete Occlusion of the Aorta and Other Large Arteries in the Dog, by Means of the Metal Band, Jour. Exper. Med., 1909, xi, 373.
22. Matas, R.: Some of the Problems Related to the Surgery of the Vascular System; Testing the Efficiency of the Collateral Circulation as a Preliminary to the Occlusion of the Great Surgical Arteries, the president's address, American Surgical Association, May 1910, Tr. Am. Surg. Assn., 1910; Ann. Surg., 1911, liv, 1; Surgery of the Vascular System, in Keen's Surgery, v, 350 (see chapters on Aneurysm and Aneurysms of Special Arteries) Philadelphia, W. B. Saunders Company, 1909; The Suture as Applied to the Surgical Cure of Aneurysm, Tr. Seventeenth Internat. Cong., London, Aug. 6-12, 1913, report, Section of Surgery.
23. Allen, C. W.: The Matas Band as a Test of the Collateral Circulation in the Circle of Willis, South. Med. Jour., 1912, v, 346.
24. Gessner, H. B.: The Matas Band as a Test of the Collateral Circulation through the Circle of Willis, South. Med. Jour., 1912, v, 307.
25. Maes, U.: The Matas Test for the Efficiency of the Collateral Circulation in Aneurysms of the Extremities, South. Med. Jour., 1912, v, 304.
26. In addition to the references already given, the following will be of interest:
Peck, C. H.: Popliteal Aneurysm (Endo-Aneurysmorrhaphy obliterative) (tests for the collateral circulation applied and described), Ann. Surg., 1911, liii, 861.
Cross, R. S.: Popliteal Aneurysm: Obliterative Endo-Aneurysmorrhaphy (tests for collateral circulation applied and described), Australian Med. Jour., 1912, i, 309.
Gardner, F.: L'Endoanevrismoraphie, Gaz. d. hôp., lxxxiii, 1599.
Delbet, P., and Mocquot, P.: Affections chirurgicales des artères, Nouveau traité de chirurgie (Le Dentu-Delbet) Paris, 1911, xi.
Hamann, Carl A.: Ligation of the Innominate Artery, Ann. Surg., June, 1914, p. 962. (Refers to G. N. Stewart's calorimetric method, Arch. Int. Med., December, 1912, p. 678; also Harvey lecture for 1913).
Lejars: Les applications exploratrices de hyperémie active, Semaine méd., 1914, xxxiv, No. 3.
Smäler: Zur Unterbindung der Carotis Communis, Beitr. z. klin. Chir., 1913; lxxxii, 494.
Sandrock, W.: Zur Bestimmung der Ernährungsgrenze bei Gangrena Pedis, Zentralbl. f. Chir., 1913, No. 27, p. 1070.

Disease as a Disturbance of Equilibrium.—When the variation carried out by the organism leaves that organism in a renewed condition of equilibrium with its surroundings, we reckon its state to be normal or physiological; when, however, it fails to adjust itself, the term "disease" may be used. This term has also been applied, though without proper justification, to cases in which, in answer to an unusually sudden or unwonted environmental stimulus, the organism has been called on to put forth greater efforts than usual. Thus, when the body is invaded by micro-organisms to which it has not been accustomed, the result usually is a more or less powerful reaction (inflammation, etc.) on its part.—Arthur J. Brock, *Edinburgh Med. Jour.*

ANEURYSM OF THE POSTERIOR TIBIAL ARTERY

WITH REPORT OF TWO CASES*

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The method of direct suture for the repair of wounded vessels was applied to the treatment of aneurysm very soon after its discovery. Later, principally through the work of Carrel on vessel transplantation, another impetus was given to this study. An ideal method, therefore, has been developed for the treatment of aneurysms which has for its object the removal of the defect in the vessel and the provision of a new channel through which the blood may flow over its original course.

The ideal method aims at success without the assistance of a collateral circulation. In cases in which the collaterals are well developed, the ideal operations put a needless burden on both patient and surgeon, because not only are they difficult to perform but also they frequently fail on account of the generally diseased condition of the vessel involved. Such failures, due principally to embolism or hemorrhage, jeopardize the limb, often demanding amputation on account of gangrene. When the collateral circulation has not been established the ideal operation becomes more dangerous for the patient, especially if the vessels are sclerosed. The risk of ligation in such cases is well known, and it is here that the endo-aneurysmorrhaphy of Matas or the bands of Halsted are of greatest value. These methods diminish the flow of blood through the aneurysm, and provide for its gradual occlusion, during which time an adequate collateral circulation may develop. The great superiority of the bands over other forms of occlusion lies in the slight disturbance of the vessel incident to their application.

These considerations apply most forcibly to aneurysms of the larger vessels. For smaller vessels the choice of treatment is between ligation, on the one hand, and excision or obliteration, on the other.

Although the probabilities of gangrene are nearly equal in either form of treatment, ligation has a great disadvantage in permitting recurrence through refilling of the sac.

The contributions of Monod and Vanverts[1] summarize in an excellent manner the general results of the various forms of treating aneurysms. Since their publication the best articles relating to the subject have been detailed reports of operations on particular vessels, for example, Halsted[2] on the common iliac artery, and Elliott[3] on the subclavian artery.

Reports of aneurysm of the posterior tibial artery are rare. I have found only nine cases in the literature since 1894, and there are no specimens of this aneurysm mentioned in Lamb's[4] catalog with reference to the Army Museum. For this reason I am reporting the two cases that were admitted to my service at the Mercy Hospital, Baltimore, during the summer of 1913. In the first case I performed the operation of obliterative aneurysmorrhaphy, while in the second, my associate, Dr. E. H. Hutchins, excised the aneurysm. The similarity of position and general character of the aneurysms gave an excellent opportunity for comparing the results in the two forms of treatment.

Reporter	Place Reported	Age of Patient	Duration	Etiology	Type	Operation	General Vascular Condition	Result
P. Penquiez	*Gaz. méd. de Picardie*, 1900, xviii, 21.	62	—	Spontaneous	Saniform	Excision	Sclerosis	Immediate cure
Leuger	*Bull. Acad. de médecine belge*, 1903, xvii, 1006.	27	4 years	Traumatic	Not given	Excision	Healthy	Cure; 3 years' observation
Bobbio	*Giov. d. r. Accad. di Med. di Torino*, 1903, lxvi, 545.	36	—	Spontaneous	Not given	Excision	Not given	Immediate cure
Saigo	*Deutsch. Ztschr. f. Chir.*, 1906, lxxxv, 577.	33	4 months	Traumatic	Not given	Excision	Not given	Immediate cure
Ochmann	*Vratch*, 1908, p. 1350	—	—	Traumatic	Not given	Excision	Not given	Immediate cure
Vinunay	*Loire méd.*, 1909, xxviii	21	6 months	Traumatic	Not given	Excision	Not given	Immediate cure
Houzel	*Rev. de Chir.*, 1910, xlii, 431	60	2 years	Spontaneous	Not given	Excision	Atheromatous	Immediate cure
Perkins	*New Orleans Med. and Surg. Jour.*, 1909, lxi, 810	40	4 months	Traumatic	Saniform	Obliterative Aneurysmorrhaphy	Good	Immediate cure
Primrose	*Canadian Med. Assn. Jour.*, July, 1913.	44	4 months +	Spontaneous	Fusiform	Obliterative Aneurysmorrhaphy	Marked sclerosis	Cure; death three mos., uremia
McGlannan	Present Report	55	14 months	Spontaneous	Fusiform	Obliterative Aneurysmorrhaphy	Sclerosis	Cure, senile gangrene 6 months
McGlannan	Present Report	45	1 year	Traumatic	Fusiform	Excision	Healthy	Immediate cure, with edema of foot and leg

CASE 1 (Surg. 81064).—Aneurysm posterior tibial artery, upper portion, ruptured. Endo-aneurysmorrhaphy obliterative. Cure.

Colored man, aged 55, truck-driver. Referred by Dr. Stiefel, Baltimore. Duration of disease, fourteen months. Symptom of onset, pain in the leg increased by motion of knee. Ten days before admission sudden sharp pain occurred after violent flexion of the knee and patient noticed the development of a large swelling in the right calf.

On admission, the mass in the right leg extended from the lower portion of the popliteal space to about the middle of the calf. There was a prominent bulging just below the head of the fibula (Fig. 1). The swelling was tense and firm, the skin shiny and the superficial veins distended. No pulsation could be felt in the artery at the malleolus, or in the dorsalis pedis. The foot was slightly edematous, but was warm and the circulation in the toes seemed good. There was loss of plantar flexion in the great toe, but no disturbance of sensation. The general cardiovascular condition of the patient was poor. The heart was hypertrophied and the seat of double mitral murmurs, with a general arteriosclerosis. Blood-pressure 185. The urine contained albumin

* Read before the Section on Surgery, General and Abdominal, at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

1. Monod and Vanverts: Rev. de chir., 1910, 1911, xli-xliv.
2. Halsted: Bull. Johns Hopkins Hosp., 1912, xxiii, 2.
3. Elliott: Ann. Surg., 1912, lvi, 83.
4. Lamb: Mil. Surgeon, February, 1911.

and granular casts. Wassermann reaction negative. Roentgen-ray examination negative.

Operation.—June 20, 1913, the patient was given ¼ grain of morphin hypodermically and placed on the table in the prone position. Iodin disinfection was used for the skin and a tourniquet applied in the upper third of the thigh. With novocain infiltration, an incision was made extending from the upper portion of the popliteal space down the middle line of the back of the leg to its lower third. The thinned-out gastrocnemius and soleus muscles were divided, the clots wiped out of the wound and the ruptured aneurysmal sac exposed. The sac was fusiform, about 12 cm. long with a wound extending about 5 cm. in its upper portion. The dilatation began just below the point of divergence of the peroneal artery. The nerve was pushed to the inner side and the tibialis posticus and flexor longus pollicis muscles were almost entirely destroyed by pressure. The rough edge of the tibia with several small exostoses was felt through a thin membrane in the depths of the wound, just anterior to the aneurysm.

Fig. 1.—Aneurysm of posterior tibial artery (Case 1). Photograph of patient before operation.

The sac was opened throughout its length and the upper and lower openings of the artery sutured with fine silk from within. No other vessels opened into it. The sac was next obliterated by several layers of catgut sutures, the muscles united and the wound closed without drainage.

Convalescence was uneventful, except for a hematoma in the wound which required evacuation on the tenth day. The circulation in the foot was always good and the edema disappeared at once. There were no symptoms of nerve disturbance, but there was loss of power in plantar flexion of the great toe, easily explained by the destruction of muscle observed at the operation.

In December, 1913, six months after the operation, this patient returned for treatment on account of numbness in the great toe. Dry gangrene soon developed and extended until all the toes were involved. These were removed one at a time as the line of demarcation appeared, but later the process extended, especially over the dorsum of the foot. At the present time this patient has a granulating stump, the lower ends of all the metatarsals having been removed. The granulations are healthy, the circulation is good and it is likely that no further extension will occur.

On account of the general arteriosclerosis, I feel that this gangrene, coming on six months after the operation, cannot be charged against the value of the procedure, nor considered a sequel of the aneurysm, but should be looked on as a natural development of his previously existing arterial disease.

Fig. 2.—Aneurysm of posterior tibial artery (Case 1). Sketch showing appearance of sac after removal of clot.

CASE 2 (Surg. 85019).—Aneurysm posterior tibial artery, upper portion, ruptured. Excision. Cure.

Colored man, aged 45, stevedore. Referred by Dr. G. F. Chambers, Lusby, Md. Duration one year. Symptom of onset, pain and swelling after a slight injury, followed later by visible and palpable pulsation of the swelling. A short time previous to admission the patient noticed rapid increase of the swelling and a disappearance of the pulsations. The leg became heavy and painful and interfered with walking.

On admission the leg was so greatly swollen from 4 inches above the knee to the tip of the toes that all anatomic landmarks were obliterated. The skin was shiny and stretched over the firm swelling. No pulsation was felt in the tumor or in the region of the arteries at the ankle. No disturbance of sensation over the foot and leg.

The general condition of the patient was good. No arteriosclerosis, or disease of the heart or kidneys. Roentgen-ray examination negative. Wassermann reaction negative.

Operation.—Aug. 26, 1913. Ether anesthesia. Iodin disinfection. Tourniquet placed about middle of thigh. A long incision made over the swelling in the midline of posterior portion of the leg. Calf-muscles divided, opening into a cavity, extending from knee to ankle, filled with blood-clot. After the clot was cleaned out, the fusiform aneurysm was exposed, situated at the uper portion of the posterior artery. The sac had ruptured, and the extravasated blood hollowed out an immense cavity in the leg-muscles, across which the vessel extended like a stretched cable. The aneurysm was excised and after ligation of several vessels the wound closed with drainage.

The convalescence was uneventful, the wound healing without any complications. Edema of the foot and leg was marked and persistent. Eight weeks after the operation, in spite of rest with elevation of the limb, and bandaging, the circumference of the calf of the injured side was 6 cm. and of the foot 5 cm. greater than that of its fellow.

This edema very slowly diminished and finally disappeared. A late report from the patient states that he is able to do his work as before the injury.

These two cases offer an excellent opportunity for comparison between the relative advantages of endo-aneurysmorrhaphy and of excision in the treatment of aneurysms of the peripheral vessels.

1. Ease of execution. The intersaccular suture was done rapidly and comfortably without any disturbance to the surrounding tissues. The ease with which the veins and nerves were avoided was noticeable. The excision, on the other hand, required greater dexterity and much more disturbance of the veins in the control of hemorrhage. Regarded from the point of view of the operator, the Matas operation is, therefore, preferable, because of its easier performance.

2. The immediate result of the operation. The edema of the leg and foot following excision and its entire absence after the Matas operation is the most striking feature

Fig. 3.—Aneurysm of posterior tibial artery (Case 1). Sketch showing sac and vessel extending across the cavity excavated by the clot.

of the immediate result in these cases. The persistent edema interfered to a marked degree with the function of the limb, and gave the patient a good deal of discomfort.

The cause of the edema is not easily explained. It is possible that the preservation of the vessel in the Matas operation also preserves an important portion of the route of lymphatic return from the foot and in this way prevents the development of edema.

3. The ultimate result. I have already given my reasons for concluding that the gangrene of the foot, occurring in the first patient, was not attributable to the aneurysm or its treatment. Disregarding this factor then, the end-result in both cases is the same. The aneurysm is cured without sacrifice of the leg or its function. Therefore, in the ease of execution and in the greater immediate comfort of the patient lie the advantages of endo-aneurysmorrhaphy.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. MATAS AND MCGLANNAN

DR. B. M. BERNHEIM, Baltimore: I would emphasize the necessity not only of having a collateral circulation in these vascular conditions, but also of finding out how extensive it is. The reason these tests are not more generally known and practiced is because, for the general surgeon, they are really too involved; they are too difficult to interpret, and, finally, even when used carefully and when a real attempt is made to interpret them properly, they are not entirely conclusive. The great variety and number of the tests, as brought out by Dr. Matas, are an evidence of this. In the abdomen and around the great trunks of the neck I believe it is best to apply the preliminary band according to Dr. Matas' directions and to operate accordingly. That is, if, after the band has been on for a sufficient length of time there is threatened gangrene of the affected extremity, the band had better be removed and some method other than extirpation or ligation had better be attempted. Concerning Matas' method of occluding the vessels of the extremities, I mean occlusion of the femoral artery to determine the condition of the circulation of the leg, Dr. Matas mentioned that he had tried this test a number of times. I did not hear him say whether he thought there was any danger in this test. If he had any bad results I am sure he would have mentioned them. In my vascular work I have always felt it a mistake to put any great pressure on the femoral or axillary artery when there was any considerable vascular disturbance far below it, because it seems possible to injure the sclerotic vessel by dislodging a chance thrombus. I have now operated on a great many patients in these so-called angiosclerotic conditions with threatened gangrene of the leg, and these vessels are very liable to be injured. Therefore I do not make use of any test other than to use digital pressure. To put on pressure with any instrument is a mistake. For practical purposes the pulse-test is the most satisfactory, especially for the surgeon who has a casual blood-vessel case. It is my routine in these cases, for instance in the leg, to start first at the groin, find out whether there is a femoral pulse and if so trace it downward not only digitally, but with the stethoscope, and then examine for the popliteal pulse. To be sure that it is present is rather simple, but it is not so easy to know when it is absent. After finding or not finding a popliteal pulse I then attempt to find the dorsalis pedis artery. If the pulsation can be felt in the foot, in the popliteal space and in the groin, one may be sure that the circulation of the leg is in pretty good shape. If there is no dorsalis pedis pulse, or pulse in the popliteal space, one had better consider carefully what operation to attempt. I believe, as does Dr. McGlannan, that there have been many ill-advised attempts to suture arteries, but I also believe there have been ill-advised attempts to do an endo-aneurysmorrhaphy and that, unless the younger and older generations of surgeons attempt to become proficient in blood-vessel surgery, there is little hope for vascular surgery in the future. I deprecate the practice of vascular surgery on human beings by any man before he attempts this work in the laboratory, but every young surgeon should go into the laboratory and make himself proficient in the handling of the blood-vessel suture. These sutures are now on the market. A manufacturing house is putting up a package with blood-vessel needle and suture already threaded, in a liquid vaseline, so that there can be now no excuse for a man not being prepared to do any blood-vessel operation that might come up. When there is pain in the extremity in circulatory disorders, one had best be careful, because pain, especially in these angiosclerotic conditions, is an indication that the circulation is not what it ought to be; it is due to an ischemia. Therefore, whether or not due to an aneurysm, my advice would be that, when every means at his disposal have been employed to discover the condition of the collateral circulation, if the surgeon is in doubt, he will be favoring his patient most if he will do a blood-vessel suture rather than a ligation or an extirpation. With a developed collateral circulation, Dr. Matas' operation of endo-aneurysmorrhaphy is the method of choice.

DR. A. PRIMROSE, Toronto, Can.: I reported, in conjunction with Dr. T. D. Archibald, a somewhat similar case some time ago. (Primrose and Archibald: Aneurism of the Posterior Tibial Artery: Rupture of the Sac: Operation by the Matas Method, *Canadian Med. Jour.*, July, 1913. The patient was a man aged 43 who first came under treatment in July, 1911, for nephritis and arteriosclerosis with slight cardiac hypertrophy. The urine contained hyaline and granular casts with 2.8 per cent. of albumin. Feb. 8, 1912, rupture of an aneurysm occurred in the calf of the right leg. In April, 1912, he suffered from a peculiar numbness of the left side of the face accompanied by thickness of speech, which persisted. The patient had been an alcoholic. He had marked exophthalmos. The blood-pressure range was from 100 to 220 mm. Hg. The tumor in the calf of the right leg was firm and did not pulsate as a whole. There was a well-marked bruit over it which was systolic, loud, rough and blowing, with a remarkable musical note. June 15, 1912, an operation was performed. An adherent laminated clot was found which was about the size of a hen's egg. Beyond this a large cavity containing a very dark, almost black, blood-clot, lay beneath the soleus and had the deeper muscles of the calf in its floor. The clot was removed and the cavity washed out with hot saline solution. A ruptured aneurysmal sac was found with two openings on its posterior surface. The ruptured sac was closed by Matas' method. No. 1 chromic catgut was used for the purpose, the obliterative form of suture being employed. The blood-pressure during the operation went up to 260 mm. Hg. Subsequent to the operation the blood-pressure remained from 170 to 180 mm. Hg. The albumin in the urine diminished to ½ per cent. The patient's speech was almost normal and he appeared remarkably well. Ten weeks subsequently he contracted pneumonia and died—about three months after operation. Our patient was severely handicapped for operative procedure by reason of the existence of nephritis with the arteriosclerosis and an unusually high blood-pressure. In this respect in the case reported the history is almost identical with that first referred to in Dr. McGlannan's paper, and both of these possess a history in marked contrast with that in Dr. McGlannan's second case in which there was no arteriosclerosis and no kidney disease. In all three cases the aneurysm had ruptured before operation. I can add my testimony to that of Dr. McGlannan concerning the ease and comfort with which the Matas operation can be performed, and to the efficiency of this method of treatment. I think he is hardly justified in instituting a comparison between the results obtained in the two cases he reports, because the factor of serious kidney disease with marked arteriosclerosis in his first patient was a serious handicap which was not present

V. 191

in the second. Had excision of the aneurysm been attempted in the first case (or in my case) the operation would have been rendered the more difficult and dangerous, not only because of the difficulty in controlling hemorrhage which would have been encountered in the presence of such marked sclerosis of vessels, but also the greater amount of interference with veins and other vessels in the operation of excision would have had still greater effect than in dealing with diseased vessels. In all probability, the subsequent edema would have been still more troublesome if, indeed, the vitality of the limb had not been endangered. The Matas operation, therefore, seems the ideal one in such cases. The term "laminated clot" is misleading when used to describe the contents of such an aneurysm. We associate the term "clot" with the formation and deposition of fibrin in which are entangled red cells and some leukocytes, unless the former be washed out to permit of a "colorless clot." On microscopic examination, however, of the so-called "laminated clot," we find, in many places, an almost complete absence of fibrin; there is, instead, a solid mass of blood platelets interspersed with leukocytes. In certain parts, fibrin (usually in strands) may be found interspersed with red and white cells. The fate of all may be "organization" and replacement by fibrous tissue. It is apparent that organization is largely if not solely accomplished by the proliferation of the endothelial cells of the intima-forming fibroblasts, with the ingrowth of capillary loops. This eventually, in favorable cases, proceeds to complete obliteration of the cavity by fibrosis. On the other hand, the ultimate fate of a mass of platelets may in part be to undergo autolysis or absorption. Blood stagnant in a vessel, for example, after ligature, will clot; fibrin forms and this subsequently organizes. In an aneurysm a thrombus occurs, formed, primarily, largely of blood platelets with a variable amount of fibrin, and certain alternation of these elements may occur to produce a laminated effect. These facts are important in considering the result of the Matas method of operating. Here the blood-flow, which is essential for the deposition of platelets, is completely cut off, a small amount of blood-clot may form and fibrin be deposited, but the endothelial surfaces are approximated and by proliferation of the cells of the intima, fibroblasts appear which lead to fibrous-tissue formation and thus complete obliteration occurs by a process of fibrosis. The results thus attained are ideal.

DR. JOHN W. PRICE, JR., Louisville, Ky.: The ideal procedure for operation in cases of aneurysm of the traumatic type, or as a result of arteriosclerosis has been put in bad repute by men of bad judgment, by men who have attempted to make an anastomosis between a venous graft and the end of an artery with such a high grade of endarteritis that the circulation of the artery wall itself was not good, so that there was no hope for the anastomosis to take. By the proper selection of cases, especially those of traumatic aneurysm in young men when the endothelium is in good condition, our hope for doing the ideal operation is very good. The failure in such a case is the fault of the operator and not of the operation. The obliteration which occurs at the site of the anastomosis of the venous graft to the artery is due to the formation of thrombi. The formation of thrombi is the result of the failure accurately to approximate the endothelial surfaces of the graft and of the artery. We have overcome this difficulty by the use of a very simple instrument which we have used in our experimental work, which we call a cannula forceps. It is simply a cannula which has been divided longitudinally into halves, each half soldered to the tip of a blade of a mosquito forceps. When the forceps is closed our cannula is complete and when open we can put it around the artery, turn a cuff of the artery back over our closed cannula, then bring the end of the venous graft over the cuff of the artery so that we have endothelium next to endothelium. The ends of the vessels are held in position by little hooks attached to the shaft of our instrument. We apply a continuous basting-stitch suture around and around, with our cannula as a firm base to work on. When the suture is completed one simply slips the cannula out of this cuff. What is obtained? An approximation of endothelium to endothelium, the basting stitch going from outside to inside of the venous graft, and from inside to outside of the artery. There is a minimum chance for the formation of thrombi. The simplicity of this procedure appealed to me and I have suggested it because many men, who have neither the time nor a laboratory in which to do an immense number of blood-vessel anastomoses, can use this cannula-forceps. With it 99 per cent. of skilful abdominal surgeons will be able to make anastomoses the first time. The first one I performed with a medical student in five minutes. There was no skill on either side. I had no special experience. I had tried the Carrel method and had failed.

DR. J. SHELTON HORSLEY, Richmond, Va.: Dr. Matas' contributions to the therapeutics of aneurysm are important. He shows that there is no single treatment for aneurysm. Differing aneurysms and varying conditions require different treatments. The only genuine "ideal operation" for aneurysm is that which cures the patient with the greatest safety. The so-called ideal of restoring circulation by excising the aneurysm and suturing on a piece of vein to reestablish the circulation may sometimes fulfil this, but not always. According to the tests described by Matas, if the collateral circulation is fairly good in the extremities the operation of endo-aneurysmorrhaphy is the ideal treatment. If, however, the circulation is quite poor, if there is already evidence of defective circulation too great to permit the use even of the constriction band, endo-aneurysmorrhaphy will not be indicated. Therefore, the so-called ideal operation of excision and substituting a piece of saphenous vein would be proper. Those who have had any experience with operation on aneurysms of the high femoral know that it is often difficult and bloody. The only way in which the circulation can be completely controlled is by pressure on the aorta. These cases can be sometimes treated by clamping the artery at both ends of the aneurysm and gradually excising the sac with the substitution of a portion of the saphenous vein. Lexer reports a case in which he did this. The patient was perfectly well six months later. Arterial suturing requires some experimental work before it should be used clinically. In the beginning of intestinal surgery there were numerous bobbins, buttons, etc., used. Now everyone uses needle and thread. In blood-vessel work the same process of evolution will take place. The advantage of everting intima and applying a broad surface of endothelium to endothelium is obvious. Lexer used the running stitch of Carrel and it pulled out and he then used the mattress stitch. Now a single mattress stitch, certainly in experimental work, is sometimes dangerous, for secondary hemorrhage sometimes occurs. It complies with the conditions of approximating broadly by everting endothelium but leaves a weak point between the stitches. In intestinal surgery, endothelial surface is on the outside and one turns a flange in; in blood-vessels, endothelium is on the inside and one turns a flange out. You would not think of doing intestinal surgery by whipping the edges together with an overhand stitch as in suturing skin. I have adopted the double mattress or cobbler's stitch, which fulfils all these conditions and leaves no weak point and I have never had secondary hemorrhage since using it. Experimentally, I have excised a portion of the abdominal aorta and sutured into the defect a rubber tube and the dog made a perfect recovery. I have done it seven times and had only one perfect recovery. In this case the dog was killed six months afterward, and the specimen removed. There had been no paralysis of the hind legs. The tube was occluded, but it had become occluded gradually so that the collateral circulation had time to form, and clinically the result was as good as if the tube were patent. As the mortality of ligation of the aorta is 100 per cent., this method might be considered.

DR. RUDOLPH MATAS, New Orleans: With regard to Dr. Bernheim's comments, it does not follow that because a considerable number of suggestions have been offered for testing the collateral circulation that all these are difficult or

fallacious. Some discretion and judgment must be exercised in applying the tests according to circumstances and, especially, the regions involved. We have been testing the circulation in our clinics since 1907 in every case in which the obliteration of the parent artery of the region might be required in the course of an operation on the neck or extremities. Thus far we have not met a case in which the simple methods tnat we have devised have failed to interpret the circulatory conditions. We have been so much encouraged by our results that we cannot understand how any one who is acquainted with these procedures would fail to avail himself of the very valuable information that they furnish, before undertaking an operation involving the great vascular trunks. Dr. Bernheim laid stress on the test by the pulses. So far as my experience is concerned, the absence of the peripheral pulses as an evidence of deficient collateral circulation is most fallacious. There is a general impression that in popliteal aneurysms, for example, when the pedal pulses are absent, the collateral circulation must be insufficient and an operation dangerous to the limb. This is an error which was very clearly pointed out, years ago, by Delbet. As long as the limb is not choked up, edematous, cold and cyanotic, and there is a good living color, the absence of the dorsalis pedis and posterior tibial pulses simply means that the main trunks are obstructed but that there is an adequate collateral supply. Were it not so, the foot would not be living, sensitive and otherwise normal. Furthermore, the loss of the peripheral pulses is a matter of very frequent occurrence in aneurysms of the extremities, and may exist for months and years, without any appreciable effect on the nutrition of the distal parts. In such cases one should not hesitate to operate, as the collateral circulation is assured. Concerning the fear expressed by Dr. Bernheim with regard to the dangers of arterial compression, I fully appreciate his caution, but do not believe he has obviated the risks by substituting digital for well-padded instrumental compression. The history of the old and supposedly most innocent method of curing aneurysm by digital compression is too well stocked with lamentable failures in which gangrene followed thrombosis or the displacement of emboli to warrant any statement of security by this procedure. As a matter of fact, an old atheromatous and calcareous artery can be subjected to no manipulation which does not involve some risk. In dealing with the surgical diseases of the blood-vessels this risk is always present. Even in dealing with normal arteries it is never absolutely avoidable. Embolism and thrombosis are the bane of vascular surgery. In the cure of aneurysm the methods which only temporarily or partially arrest the circulation in the sac, are especially to be feared from this cause. The intrasaccular method, by avoiding the direct manipulation of the blood-vessels and by getting rid of the clot, undoubtedly diminishes the risk of emboli displaced from the sac. The results of our methods must always be comparative. Any one who quotes the statistics of any method of treating aneurysm without mortality or without accidents of any sort, only proves that his experience is very small indeed. What we are trying to do is to cure the greatest number with a minimum risk of life or limb. In accomplishing this, we believe that a great measure of our success has been due to the care and attention that we have given to the study of the circulation, and especially the collateral circulation, as a prerequisite to operation, in each case.

Dr. Alexius McGlannan, Baltimore: The rule of Delbet cheered us in both of our cases. In both we had a well-nourished foot although the ordinary points of pulsation were absent. We excised the second aneurysm, although we hoped to do an endo-aneurysmorrhaphy. The excision was done because, as was stated in reporting the case, the vessel reached across a cavity as a cable would across an open space in the air, and the obliterative operation would have interfered with healing and therefore the excision was done. The result of the Matas operation was as nearly perfect as one could hope for in dealing with a damaged circulatory apparatus.

MYOSITIS OSSIFICANS FOLLOWING A SINGLE TRAUMA *

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The occurrence of true bone in muscle has always held something of mystery, and even at the present time there is no generally accepted belief as to its method of origin.

Although comparatively rare, more than five hundred cases, each the result of a single trauma, have been reported in the literature. Up to 1907, Strauss[1] was able to collect reports of only 150 cases.

The malady results from a severe traumatism such as the kick of a horse, a blow from a sharp-cornered object, or dislocation of the elbow, without break in the skin or subsequent suppuration. Nearly all cases occur in the brachialis anticus or the quadriceps extensor, rarely in other muscles. It is found most commonly in vigorous middle-aged men. Porter and Quinby[2] state that it is most commonly a result of posterior dislocation of the elbow. Machol[3] records sixteen cases following immediate reposition of uncomplicated posterior elbow dislocation and says that more than one-half of the cases at the elbow follow this injury. Frangenheim[4] states that aside from this variety of dislocation, it has been known to occur but once in the subclavius following clavicle dislocation, and once in the subscapularis following humerus dislocation. Schultz[5] collected 233 cases from records in the German army during ten years, and in all but three the new bone was in either the quadriceps extensor or brachialis anticus muscles.

The essential character of the process is the formation of typical spongy bone intimately incorporated in the muscle. At an early stage it is cartilaginous, varying greatly in extent and shape. In the arm it may involve the origin, middle or entire brachialis anticus muscle and often the periarticular structures. The most typical growth is a somewhat tapering piece of bone in the brachialis anticus attached by a narrow stem to the tip of the coronoid process of the ulna. But as a rule, the new bone is not firmly attached to the humerus or ulna. Of fifty-six cases at the elbow collected by Cahier,[6] in twenty-six it was entirely movable, four pedicled, sixteen attached to the capsule, and one at first movable but later fixed.

In the thigh the formation is, as a rule, attached to the femur and has to be chiseled off. All cases are said to have attachment to the bone at some time during development, in the nature of a small pedicle, the remainder of the shaft having a smooth outline. The mass may be rounded, elongated, with irregular tongue-like projections, fan-like or coral-like, as in a case reported by Gruber.[7] At times there is a shell of bone containing old blood-clot, and in other cases cysts with bony walls. The size varies greatly, Gruber recording a mass in the vastus externus measuring 17 by 7 by 4 cm.

* Read before the Chicago Medical Society, June 10, 1914.

1. Strauss: Beitr. z. klin. Chir., 1913, lxxxviii, 740.
2. Porter and Quinby, in Bryant and Buck: System of Surgery, vii, 38.
3. Machol: Beitr. z. klin. Chir., lvi, No. 3, p. 581.
4. Frangenheim: Arch. f. klin. Chir., 1906, lxxx, 445.
5. Schultz: Deutsch. mil.-ärztl. Ztschr., 1910, No. 4.
6. Cahier: Rev. de chir., 1904, xxix, 356; 602; 768; 827.
7. Gruber: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1914, xxvii, No. 4.

Microscopically, at an early stage, there is present at the outer margin of the growth, degenerated muscle with some blood-pigment and red cells, and young connective tissue with new blood-vessels. Adjoining this is the osteoid tissue with newly formed bony trabeculae and marrow, and scattered here and there areas of cartilage. Careful histologic examination has in several cases shown a break in the outer periosteal layers, allowing the growth of bone to extend through into the soft tissues. At a late stage of the process, sections show typical cancellous bone with fibrous tissue and muscle about the outer margins.

Following a severe trauma to the anterior surface of the arm or thigh there is pain, marked swelling and discoloration, and complete disability for a few days. A roentgenogram at this time shows no fracture. Usually after a few days' rest, the patient resorts to massage and motion and in ten to fourteen days an increasing stiffness and disability is noted. A firm lump may then be felt at the seat of injury without the usual signs of inflammatory reaction. The lump continues to increase in size, and in three to four weeks the disability becomes complete. Examination shows a firm mass in the muscle, usually somewhat movable on the bone. Roentgenoscopy reveals a distinct shadow in the muscle attached at one part, as a rule, to the shaft of the bone.

Fig. 1.—Two weeks after injury (Case 1, July 22, 1913).

Fig. 2.—Four months after injury (Case 1, Nov. 10, 1913).

During the next three or four months the mass remains stationary in size, slowly becoming harder. A gradual decrease then ensues, but the growth, as a rule, persists for several years. Makins[8] recorded two cases which, six years after the onset, showed almost complete resorption of the new bone. Machol[3] studied sixteen cases with the Roentgen ray and was able to show a period of growth terminating in mature cancellous bone, followed by a stage of gradual decrease in size and increase in density. Usually the restoration of function is complete or nearly so after four months. The only complication noted has been the limitation of motion—never any disturbance from pressure on nerves or blood-vessels.

A diagnosis is made on the finding of a firm mass at the seat of a severe trauma received about three or four weeks previously, which on Roentgen-ray examination shows a shadow in the muscle without fracture of the bone. It must be differentiated from sarcoma, for which it has been most frequently mistaken, as instanced by numerous cases in the literature. Coley[9] called attention to the difficulty of differentiation at times. Rapid initial growth followed by quiescence and decrease, loss of function, outline of shaft sharp, early pain and hardness, all speak against sarcoma. Incision and microscopic section readily decide the question.

The prognosis is intimately related to treatment. A majority of writers on the subject state that a favorable outcome is to be expected if let alone, and that disability is more marked in those cases near a joint in which the periarticular tissues are involved in the ossifying process. Many believe that prophylaxis is important and advise immobilization for three weeks following an elbow dislocation or a severe blow on the thigh, with later gentle massage and passive motion. After the onset, therapy has no influence.

The opinion is unanimous that no operative procedure should be undertaken during the active stage, that is, before three or four months have elapsed. Removal before this regularly results in recurrence. The growth should be removed only when an indication, such as marked disability, is present. König[10] declares against operation and quotes Donnahl, who concluded from analysis of a series of operated cases that operation does more harm than good. Machol,[3] who reported the largest number of personally studied cases, never found it necessary to operate. Lapointe,[11] on the other hand, thinks that excision in from six to eight weeks is the method of choice in cases not complicated by formation of bone in the periarticular structures. Coley and Lapointe believe that cases situated near a joint for this reason give worse results than those along the diaphysis. Chabrol[12] collected the end-results in ninety-five operated cases, seventy-seven of which showed complete restoration of function, improvement in fifteen, and no improvement in three.

If operation becomes necessary, the entire mass with covering of fibrous tissue, periosteum and superficial layer of bone should be removed. Morley[13] advocates excision with restoration of the periosteal defect with a fascial graft.

The principal interest in so-called myositis ossificans following a single trauma attaches to its genesis. The numerous theories formerly brought forth have been largely discarded by more recent workers, and at

8. Makins, G. H.: Traumatic Myositis Ossificans, Proc. Roy. Soc. Med., Surg. Sec., 1910-11, iv. 134.

9. Coley: Myositis Ossificans Traumatica, Ann. Surg., lvii, No. 3, p. 305.
10. König: Arch. f. klin. Chir., 1906, lxxx, 64.
11. Lapointe: Rev. de chir., 1912, xlvi, 657.
12. Chabrol: Thèse de Paris, July, 1912; cited by Coley.
13. Morley: Brit. Med. Jour., 1913, ii, 1475.

present the belief is unanimous that the essential process is not a myositis at all, but that the bone formation is brought about in one of two ways: either through the agency of the periosteum or by a metaplasia of the intermuscular connective tissue.

So far as is at present known, there are but two agencies, aside from embryonal rests, which may lead to heterotopic bone formation: first the skeletal osteoblasts, and second, the presence of young granulation tissue in contact with calcified areas. Wells[14] states that without the preliminary calcification of necrotic tissue there is no subsequent ossification. Calcium is necessary to ossification. In the first the osteoblasts have the power of causing its deposition; in the second it is absorbed from the calcified areas by the young granulation tissue and utilized in the upbuilding of new bone. That connective tissue can undergo metamorphosis directly into bone without calcification has not been shown.

Heterotopic bone has been found in all parts of the body in conjunction with a preceding calcification. Liek,[15] experimenting on kidneys of rabbits, was able to show clearly the various stages in this method of bone formation: first the calcification of necrotic or degenerated tissue, followed by young connective tissue in contact with the calcified areas—the latter then being absorbed with the formation of osteoid tissue — rapidly changing directly to bone. He concludes that in calcified kidneys of rabbits following closure of the larger blood vessels, bone regularly forms, beginning in about forty-one days and complete in three months.

Gruber[7] reports a case of bone formation in a drainage wound years after a suprapubic cystotomy. Stevens[16] records a case of bone formation in the calf muscles years following a suppurating wound. He speaks of removing a piece of "calcified fibrous tissue." These are both undoubtedly examples of this mode of new bone formation.

It seems quite evident that the subject of this paper is an entirely different process from that just described. The numerous carefully made microscopic studies have never shown calcified areas. Suppuration has never been recorded. The findings have been uniformly callus formation. In all cases when sectioned sufficiently early, there has been found evidence of endochondral bone formation, whereas by the other method, cartilage is never present.

Fig. 3.—About three months after injury (Case 2). Anterior internal incision over the growth; removal; no recurrence two months later; function very much improved.

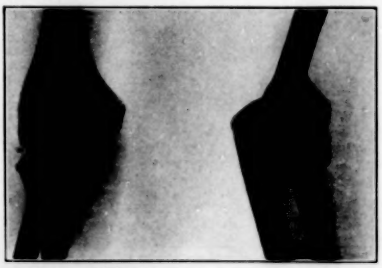

Fig. 4.—Four years after operation (Case 2).

So, I believe, we have to look to the osteoblasts, whether they come from the cambium layer of the periosteum, as believed by most authors, or from the interior of the bone, as held by Macewen[17] and lately by Morley.[13] Binnie[18] believes the periosteum to be responsible in many cases, either by osteoblasts escaping into the pulpified tissue and there developing, or by bits of periosteum being pulled into the muscle and growing, or by a large flap of periosteum which is stripped up and displaced into the muscle. That free and attached strips of periosteum transplanted into muscle may grow and produce bone has been shown experimentally by numerous workers. Such experiments, however, have failed often to develop bone or at best only small pieces, out of all proportion to the size of the flaps transplanted. Sudeck[19] advocates this method of formation in the elbow cases and attempted to prove it by experiments on cadavers. He performed twenty-three posterior elbow dislocations by hyperextension and found quite regularly, at one or all of four areas, raised or torn-off pieces of periosteum. In only three instances was there uncovering of the anterior surface of the humerus to a large extent. That small bits of periosteum may be pulled off by the fibrous capsule and give rise to small pieces of bone, or that stripped-up periosteum may form a layer of bone beneath, is evident. From the evidence presented, however, it seems apparent that the principal feature of this process, namely, the large masses of bone incorporated in the muscles, cannot be thus explained. Berndt,[20] König and others are emphatic in saying that it is an impossibility.

The explanation advanced by König[10] is that the trauma crushes all structures down to the bone, at the same time crushing periosteum and superficial bone surface. Blood and exudate collect in the separated tissue-spaces. In the process of repair the osteoblasts grow out with the newly formed granulation tissue into the traumatized parosteal structures. That early massage and movement may aid the dissemination of the osteoblasts is believed by some.

A specimen obtained by König at necropsy from the thigh of a woman injured four months previously, showed clearly the new growth of bone under the periosteum passing through the superficial layers to form the large mass of bone in the muscle. Berndt

14. Wells, H. Gideon: Calcification and Ossification, Arch. Int. Med., June, 1911, p. 721.
15. Liek: Arch. f. klin. Chir., 1906, lxxx, 279.
16. Stevens, William E.: Myositis Ossificans Traumatica, The Journal A. M. A., Jan. 18, 1913, p. 203.
17. Macewen: The Growth of Bone, 1912.
18. Binnie: Myositis Ossificans Traumatica, Ann. Surg., September, 1903, p. 423.
19. Sudeck: Deutsch. Ztschr. f. Chir., Jan. 4, 1911.
20. Berndt: Arch. f. klin. Chir., 1902, lxv, No. 2, p. 235.

demonstrated microscopically a similar condition. König attempted to simulate the conditions in rabbits but was unable to produce new bone. Morley[13] in a recent preliminary report states that he has been successful.

The conditions necessary to this form of new bone growth seem to be a destruction of parosteal tissues, often with the formation of a hematoma, connected with a break in the periosteum. In the repair of the damaged tissues granulation tissue forms and the osteoblasts, stimulated to growth by the trauma, grow along the newly formed vessels and produce bone. This view is supported by the finding in some cases of bone-walled cysts and bone cylinders containing lymph or old blood. On account of the rarity of the process, König believes that an individual predisposition must be added to this explanation.

Macewen's[17] experiments with bone growing in glass tubes show the process well. The osteoblasts spread along the embryonic connective tissue which penetrates the blood-clot and forms bone directly. He records a case of an ossified wall of a false aneurysm resulting from piercing of the brachial artery by a spicule bone in fracture of the humerus. Many authors believe that this process is similar to exuberant callus and so-called parosteal callus formation. Frangenheim[21] especially has called attention to the marked similarity clinically and histologically. That there may be an individual predisposition to increased bone formation is possible, but that there is a low-grade hematogenous infection present, as suggested by Berndt, is not at all probable.

That the affection has an anatomic basis is indicated by the fact that it is practically limited to the thigh and elbow. These have in common a thick covering of soft tissues about the bone, the deep layer of muscle being intimately adherent to the underlying periosteum over a broad extent. This lends itself well to the conditions believed necessary to the initiation of the process.

There can be little doubt that so-called parosteal callus, exuberant callus and so-called myositis ossificans following a single trauma are genetically the same. The pathologic and clinical findings bear this out. The process is not a myositis. The involvement of the muscle is incidental, the essential feature being the participation and development of the osteoblast in repair of the parosteal structures.

REPORT OF CASES

CASE 1.—P. P., aged 35, a fireman, came to the Central Free dispensary, July 21, 1913, complaining of a painful swollen elbow. Two weeks previously, while tusseling with a fellow-workman, he was thrown with the right arm twisted under him. He suffered extreme pain, and swelling developed immediately, resulting in complete disability. Two weeks after injury there was marked swelling about the right elbow with obliteration of bony landmarks, ecchymosis and entire loss of function. There was great tenderness, most marked at the external epicondyle. Roentgen examination showed no fracture. The joint was immobilized in a sling for ten days and then massage and passive motion begun. The patient reported no improvement and manipulation continued very painful. Aug. 7, 1913, about four weeks from the time of the accident, a mass of about the hardness of cartilage was felt just internal to the biceps tendon. It seemed somewhat fixed to the ulna. A roentgenogram taken Aug. 26, 1913, showed a shadow attached to the tip of the coronoid process below, extending upward 2 inches into the muscles anterior to the humerus. It was very irregular in shape, with small sharp projections, and of variable density. There was also marked ossification of the periarticular structures, a continuous mass of bone extending from the external epicondyle to the head of the radius.

Improvement was gradual and after four months patient was able to do light work. Nov. 10, 1913, four months after the injury, examination showed the same mass, more easily palpable, pointed and somewhat moveable. The forearm could be flexed to 100 degrees, extension being nearly complete. Roentgenoscopy at this time demonstrated some decrease in size of the main growth which had the appearance of a hollow piece of bone.

Eight months after the injury, patient was doing heavy work without discomfort. The bony mass was about the same size and flexion was still limited to 90 degrees. Operation was refused.

CASE 2.—M. H., girl, aged 12, came to the Central Free Dispensary in February, 1910, complaining of pain and disability of the left elbow. Six weeks previously she had fallen, striking on the forearm. A competent surgeon diagnosed and reduced a posterior dislocation of both bones of the forearm. Rest for a week was followed by massage and motion. After a few weeks, disability became more marked.

On examination, a hard mass in the flexure of the left elbow was felt. The forearm could be flexed to 100 degrees and extension also showed some limitation. The Roentgen ray revealed a shadow extending into the musculature of the arm, attached at its lower end to the tip of the coronoid process. It consisted of two distinct parts, the lower about the size of the radial head and the same density. The upper part was pointed, irregular and attached to the lower by a narrow stem. There was also noted ossification in the periarticular structures and beneath the raised periosteum on the outer side of the humerus, and also an incomplete fracture of the external epicondyle.

April 4, 1910, about four months after the injury, Dr. Lawrence Ryan removed a piece of cancellous bone from the coronoid process and with it a part of the brachialis anticus muscle. The growth involved the tendon and body of the muscle.

May 4, 1914, patient complained of no disability, being able to work as a stenographer. Flexion was limited to 95 degrees and extension only slightly. Just internal to the biceps tendon was felt a knob of bone firmly attached to the coronoid process. A corresponding mass was heaped up on the anterior surface of the humerus. Thickening about the condyles and a slight elevation at ulnar tubercle, besides a separate piece in the capsular structures were apparent in the roentgenogram. (I am indebted to Dr. Ryan for allowing me to report this case.)

Having in mind the large percentage of cases reported by Machol which developed following carefully watched cases of posterior elbow dislocation, I have followed four such dislocations at the Cook County Hospital. Three were in children, and the fourth, in a man, was complicated by a fracture of the coronoid process. In none did this condition appear, probably on account of the laxity of the joint structures in the children and the fracture in the adult which minimized the traumatism of production and reposition of the dislocation.

104 South Michigan Boulevard.

21. Frangenheim: Deutsch. med. Wchnschr., 1908, xxxiv, 497.

Etiology.—The way in which morbid causes act is in general very far from clear. The connection between extrinsic action and the cerebral lesion is almost always a very indirect one. Whole chapters in physiology and general pathology had to be written before certain distant relationships between disturbance of brain function and lesions of other viscera were discovered. — Lugaro, Problems in Psychiatry.

THE TREATMENT OF HEART INVOLVEMENT IN SYPHILIS

BASED ON A STUDY OF THREE HUNDRED CASES *

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We have already written concerning the great frequency of heart involvement in syphilis.[1] Here and elsewhere,[2] we have discussed the character of the changes in the organ, pointing out that the most frequent and important lesion in all stages of the disease is one of the heart-muscle which is dependent on a periarteritis of the coronary vessels. This lesion was apparently first described by Isaac Adler,[3] and its frequency of occurrence, since noted by many, has been recently verified by Warthin,[4] who has demonstrated with considerable constancy the presence of spirochetes in these characteristic foci.

In another paper,[5] presented as a continuation of our study of this subject we have discussed the symptoms and diagnosis of the complication.

Some of these cases have now remained sufficiently long under observation to permit us to discuss with some authority the question of treatment and its results, covering cases in the secondary and tertiary stages of the disease. It is our purpose to present in this paper certain aspects of this important side of the subject in so far as our rather brief though active experience now goes.

We have found it very difficult to discuss treatment in an analytical way inasmuch as so many cases have come under our observation on our hospital services, where definite data could not be elicited as to the precise methods of specific treatment previously employed, nor of its extent.

Obviously in a large percentage of the cases the time at which the heart-lesion developed could not be ascertained; in fact, this point could be surely fixed only in some of the secondary cases. The character and extent of previous treatment for circulatory discrepancies can also not be definitely determined.

We have included in our list for analysis a number of cases which have been treated in various hospitals or by private physicians with entire disregard of the luetic origin of the cardiac fault. Such instances have been included because we have found that comparison of these with those treated on the assumption of a definitely syphilitic change affords a basis for conclusions of value. Only four instances are found, however, in this series in which improvement without specific treatment took place.

Since a considerable number of cases have only been conclusively recognized by lesions discovered post mortem, it must be understood that it is highly probable that the percentage of fatal results in this group of three hundred cases is overestimated, and it is therefore not mentioned, as having no accurate bearing on the treatment of this complication. The apparent recovery or signal benefit of equally desperate cases, when treated on the basis of the luetic origin of the heart defect, certainly indicates the necessity of such a therapeutic basis. We are keenly aware that so crude an analysis as is possible on material of this character does not establish a certain scientific fact, but we feel that our study, covering, as it does, over three hundred cases, has led us to conclusions of very real applicable value from the clinical point of view.

It will be noted throughout that our methods of treatment vary greatly, and that no one routine type of drug or procedure has been adhered to. This may be in part due to the fact that our therapeutic studies have been, and still are, in an experimental stage, but chiefly because we have been driven to the conclusion that in the treatment of patients suffering from this complication each instance must be definitely individualized, and that no one routine method will be found to apply with equal benefit in all cases. Unscientific as this conclusion may appear to some, to those long actively concerned in the treatment of disease in routine patients, it needs no defense, and the absolute necessity of such a basis for the best therapeutic results will be apparent.

We again wish to emphasize the fact that the essential lesion, in so far as the heart in syphilis is concerned, is a periarterial granulomatous or inflammatory change affecting the heart-muscle. From the standpoint of treatment, we believe that this assumption is most important, for our studies have shown the final or immediately lethal lesion in most cases to be a giving way of the muscle. Furthermore, we are convinced that in most cases where improvement has followed treatment it has been accomplished by a clearing up of these rather than of other lesions, though we recognize with Sachs, Collins and many others after them that a true endocarditis, even of considerable standing, may be absolutely removed by specific treatment.

We also wish to state that in our opinion some of the most brilliant results attributed to specific treatment in cases of syphilitic aortitis have in reality been achieved from improvement of the universal heart-muscle lesions, for many of the symptoms commonly attributed to this lesion are really due to muscle disease. This assumption is apparently supported by the recent pessimistic but undoubtedly accurate studies of Warthin.

CASE 1 (231).—M. F., woman, aged 50. Negative history as to lues. Five years ago, epigastric and precordial pain with vomiting, dizziness, headache and weakness. Shortly after, dyspnea on least exertion. One year later edema, precordial pain reflected down left arm into hand. All symptoms recently greatly increased. Physical examination showed poor muscle tone with systolic at mitral and at aortic rings. Broad area of retrosternal dulness, tenderness over manubrium. Roentgenoscopy shows dilated arch. Under circulatory treatment in hospital for three months, constantly losing ground, all symptoms progressing. Wassermann reaction negative. One grain mercuric salicylate given intramuscularly with idea of activating Wassermann. Marked improvement in pain within twenty-four hours. Circulatory drugs discontinued and mercuric salicylate continued in vigorous dosage. Patient now up and about ward, apparently free from all symptoms except on exertion. Wassermann reaction positive. Roentgenoscopy shows no apparent change in aortic shadow.

* From the Second Medical Service of the City Hospital.
* Read before the Section on Practice of Medicine at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

1. Brooks, Harlow: A Study of the Heart in Syphilis, Med. Rec., New York, 1912, lxxxi, 351.
2. Brooks, Harlow: Clinical Observations Concerning the Heart in Syphilis, Inter-State Med. Jour., 1913, xx, No. 6; The Heart in Syphilis, Am. Jour. Med. Sc., 1913, cxlvi, 513.
3. Adler, Isaac: Observations on Cardiac Syphilis, Tr. Assn. Am. Phys., May 3, 1898.
4. Warthin, A. S.: Tr. Assn. Am. Phys., May 13, 1914.
5. Brooks, Harlow, and Carroll, John: The Symptoms and Diagnosis of Involvement of the Heart in Syphilis, Based on a Study of Two Hundred Cases, New York State Jour. Med., 1913, xiii, 328.

TREATMENT IN SECONDARY CASES

The early cases treated have mostly occurred either in the private practice of one of us (Carroll), or in the service of our colleague, Dr. J. A. Fordyce, who has greatly encouraged our studies of this subject. Twenty-four such instances have been observed. Two fatalities occurred among them (previously reported) but in both the nature of the disease and its complication had not been recognized in sufficient time to admit of proper treatment. Confirmatory necropsies were secured in both. Apparently complete recovery without any subsequent heart defect took place in all the other cases, save one to be mentioned later. We wish in this regard to point out the care which should be exercised by those in charge of early syphilis that cardiac strain be avoided until treatment has been established, and that the same necessity for consideration of the circulatory apparatus be recognized as in the other infections, diphtheria, rheumatism, septicemia and the like.

CASE 2 (199).—Man, aged 34. Service of Dr. J. A. Fordyce. In secondary stage of the disease. Complains of shortness of breath, sudden attacks of precordial pain. Chills, fever, leukocytosis and the physical signs of pericarditis. Complete disappearance of signs and symptoms within three days after two doses of neosalvarsan (intravenously). The cardiac signs appeared within four weeks after initial lesion, which in this case was on nose. Apparent cure followed. Subsequent combined treatment.

Although practically all the early cases under our observation have been treated by the more modern methods, that is, with salvarsan, we are convinced that vigorous treatment with mercury in this stage would probably also result in almost as brilliant results. We wish to assert that, aside from general prophylactic measures, the treatment of cardiac invasion in early syphilis should be directed only to the specific infection and that circulatory treatment *per se* is at this time unnecessary and probably unwise.

Although we are convinced that in by far the greater majority of cases of early lues cure of a cardiac complication may be confidently expected, certain exceptions exist. This has been well illustrated by a case referred to one of us by Dr. Alphonse Wren.

CASE 3.—Patient, woman of 25. Came under observation in the aggressive secondary stage of the disease. She had been treated, apparently mostly with mercury and the iodids in various dispensaries and by private physicians. In spite of treatment exhibits mucous patches, marked skin rash, periosteal tenderness, fever, falling hair and other evidences of active secondary lues. While still under vigorous treatment with mercuric chlorid internal, mercurial inunctions, and after three doses of salvarsan carefully administered in an excellent clinic, developed cardiac muscle insufficiency, dilatation, active aortitis (without aneurysm) endocarditis and edema and cyanosis with severe dyspnea. Salvarsan intravenous again repeated in maximum dose. Mercuric salicylate injected intramuscularly until marked salivation and other evidence of mercurial poisoning appeared. Digitalis, strophanthus, camphor and the usual cardiac regimen apparently produced no effect whatever. The case was progressing rapidly and absolutely unchecked by either specific or circulatory measures when she passed out of our observation. Though her subsequent history cannot be ascertained, it is impossible to assume other than that early death followed.

In so far as could be judged by study and observation of this case, treatment of all kinds was entirely without avail in so far as checking the course of the infection or relieving the heart complication was concerned. This has been the only case in our observation in which treatment in the secondary stage has been apparently useless. Inquiry among syphilographers of wide experience has brought to light other and probably similar cases. They would, however, appear to be quite unusual.

TREATMENT IN LATE CASES

Most of the cases comprised in this series are those occurring, or at least presenting themselves, on an internal service for treatment in the tertiary or late stages of the disease; 277 instances of this type are included.

A few patients appeared for treatment for the first time because of their cardiac condition; but in most instances, and in practically all cases which came to our hospital service, they had been for a greater or lesser time under treatment either by private physicians or in institutions for their circulatory discrepancies. While in some of these cases a certain amount of benefit had been derived from such measures, mostly applied entirely without recognition of the cause of the circulatory defect, the very fact that they appeared for treatment shows that these measures in themselves had been found inadequate, probably even at the very outset of the complication. As illustrative of this point we wish to present briefly the case of a fire captain 52 years of age.

CASE 4.—He came to one of us suffering severe precordial pain and so marked a grade of dyspnea that he was hardly able to get about. He had been ordered before the retiring board because of physical disability. On examination he showed loud, double aortic murmurs, and irregular and considerably dilated heart, together with the symptoms of a probable aortitis. The man gave a history of a probable rheumatic fever but denied that of syphilis. He was placed on digitalis, but without good effect. Because of the failure to respond, and also because of the evidence of an old tibial periostitis, although a Wassermann had been refused, he was taken off the cardiac medication though, of course, circulatory precautions were still insisted on. He was tentatively placed on protiodid of mercury by mouth. Within a few days such marked improvement had taken place that when the patient was confronted with the facts of the case he admitted a syphilis twenty years ago, which had been at that time briefly treated. A continuation of the same line of treatment with the protiodid of mercury, assisted by potassium iodid, has resulted in complete disappearance of the dyspnea and other evidences of cardiac incompetence. The double aortic murmurs have practically disappeared and he has been doing full duty for some twelve months and is to-day in comparatively complete health, although still under treatment with the mercury.

These two facts stand out in this illustrative case: circulatory medication was entirely without avail, complete circulatory relief was afforded by the simple administration of mercury.

Notwithstanding frequent brilliant results of this kind, in tertiary instances we have found it by all odds most advisable to also place the patient under the usual hygienic and therapeutic regimen indicated by the circulatory condition. Those cases which, independent of the cause, should be put at rest or in bed, should be, of course, so managed. Furthermore, when digitalis, strophanthus, camphor, strychnin or epinephrin seem to be indicated, they should be given. We have found, however, that in most instances these measures do not give the expected amount of improvement, except for that directly due to rest, in whichever form it may be decided, unless and until the patient has been under the effects of specific medication of one or another variety. Not at all infrequently, as in the

instance cited above, such a measure is at once followed by so marked benefit that the drug measures designed for circulatory compensation may be advantageously discontinued. In long-standing cases, however, particularly those in which it may be fairly assumed that fibrosis has taken place in the heart-muscle, the use of digitalis and its adjuvants or substitutes is absolutely necessary. A fact most vividly shown, however, is that these drugs used alone fail in most instances to give good results unless combined with the specific methods.

Although immediate improvement may follow the introduction of specific medication, it has been amply demonstrated in this, as in all other types of luetic disease, that for permanent results or even for steady progress, the specific medication must be persistently carried out. With a discontinuation, such as has taken place frequently when patients insist that they are sufficiently well to leave the hospital, and probably rarely then continue to carry on the treatment in anything like an adequate manner, relapses are apparently almost certain to occur. We have noted that when the treatment has been thus interrupted when it is resumed rarely indeed does a prompt response to it occur comparable to that first manifested. In other words, a tolerance of the lesion against the drug seems to have become established in some cases.

Case 5 (67).—Man, aged 51. Chancre at 30 years. Local treatment only. Present illness began in 1908. Chief complaint, dull, boring pain in left chest associated with dyspnea. For two years a constant increase in distress. Has been under almost constant circulatory treatment without relief. Wassermann positive. Given 1 grain mercuric salicylate hypodermically every 5 days. Pain, dyspnea and edema began promptly to subside. Treatment continued for nine months (sixty-six injections); three doses of salvarsan also given intravenously together with various symptomatic measures. Patient able to be discharged and to resume work as cook after three years of total invalidism. Two months later, treatment having been discontinued, symptoms reappeared, to disappear promptly under resumption of the mercury. The subsequent history has been a return of symptoms whenever specific treatment has been discontinued. Circulatory measures are now necessary to reach the results previously easily obtained by purely specific drugs.

Where the patient can be closely followed and treatment persistently enforced, progress seems to be steady to the point of apparent cure in no inconsiderable number of cases, as indicated by the fact that of the series of 300 cases so treated 116 have shown apparently permanent benefit if not actual cure. The most impressive fact of all is that a large number of cases which appear apparently hopeless go on to clinical cure.

TREATMENT WITH MERCURY

As to the precise method of specific treatment which meets with best success in these complications of syphilis, no conclusion appears as yet possible to us except that, at least in most instances, it is a matter of individualization. In not a few cases best results seem to follow an initial vigorous administration of mercuric salicylate given intramuscularly, and in general this would appear to us to be on the whole the most desirable method at the outset. The drug should be pushed to its full point of toleration, but may be subsequently replaced by mercury in the form of the protoiodid or bichlorid introduced by mouth. In some cases, as in an instance already cited, the protiodid appears to be very desirable. It seems to us that such instances are those which do not manifest the most aggressive and active symptoms and, though we are well aware that this form of mercury does not enjoy a good repute with syphilographers in general, it has given us excellent results in many of these heart cases.

Mercuric chlorid has also given us good effects in some instances, either given by mouth or by hypodermic administration.

Case 6.—J. D. Seen seven years ago with Dr. C. J. Imperatori. Patient a powerful, rather obese man, aged 26. Patient unconscious, complete anuria, heart enormously enlarged. History of long standing, apparently progressive double aortic lesion with very unsatisfactory response to digitalis, etc. Apparently *in extremis*. He had denied lues, but because of social evidence to the contrary he was given vigorous dosage with mercuric chlorid by mouth and inunctions over precordium of blue ointment. Within a few hours return of renal activity and consciousness, with subsequent cessation of precordial pain and reappearance of regular, full pulse with marked double aortic murmurs and strong, vigorous muscle contractions. Mercury continued with occasional digitalis, which now acted in a proper manner. Given potassium iodid with continued benefit. He largely disappeared from observation up to last year, when he returned with a history and condition of relapse which had developed apparently from discontinuance of treatment and from moderate dissipation. He had meanwhile carried on his work and lived an ordinary life. Relief again followed resumption of treatment but he suddenly died some four months later, apparently from acute dilatation after intercourse.

Inunctions of mercury ointment given in the usual courses also seem to act very well in many cases. In one notable instance we found little result and a very poor toleration of mercury until the old-fashioned, and to our mind usually uncertain, treatment with vapors of calomel was instituted. In practically all instances we have received best results when the form of treatment or of the drug was from time to time altered but, on the other hand, actual interruption of treatment inside of two years for no more than a few months has been followed frequently by relapse and a subsequent unsatisfactory response to this drug. We are anxious none the less not to give the impression that we believe that every case of late syphilis with heart complications will respond to mercurial treatment, and to emphasize this point we cite the following case:

Case 7.—V. H., man, aged 51. An irregular, though shrewd, practitioner in venereal diseases. Lues contracted twenty years ago. Was very aggressively treated at that time with inunctions and by "mixed treatment." Apparent cure. Subsequent life often dissipated. Late in 1913 began to be troubled by anginal attacks, dyspnea, cyanosis and spontaneous attacks of dizziness. Wassermann reaction found to be positive. Diagnosis of luetic myocarditis, adhesive pericarditis, aortitis. Varied mercurial treatment promptly and vigorously resumed, associated with occasional use of iodids. After this some, though unsatisfactory, response to digitalis, strophanthus and epinephrin, all of which had been previously found inert. Wassermann became negative. Patient absolutely refused to permit the use of salvarsan, saying that he preferred to die rather than to submit to it. Soon died, with the ultimate typical picture of a myocardial degeneration.

TREATMENT WITH SALVARSAN

Salvarsan has been employed in the treatment of seventy-five of this series. In the acute or secondary stage, used independently of mercury, it has in nearly every instance been followed by immediate improvement of the compromised circulatory mechanism, even in patients in whom the circulatory defect appeared to be serious. In such cases it may be that complete cure *might* follow the use of this drug alone. In all, however, a follow-up course of mercury has been

prescribed; some instances observed by us, but not included in this analysis in which salvarsan alone has been employed have not yet remained a sufficient time under observation to allow us to judge as to the permanence of such apparent cures. These brilliant results are much less frequently apparent in later cases, however, and such is our confidence in and reliance on mercury that in no cases have we ourselves continued the use of salvarsan alone.

Our experience has indicated to us that, while no doubt salvarsan gives a most prompt response, its permanency in tertiary complications, referring entirely now to those of the heart, does not appear to be established unless the treatment is followed up by the protracted use of mercury. Where very prompt response to treatment seems to be necessary salvarsan is given, but in cardiac even more than in other complications of this infection a very serious degree of reaction may follow the giving of salvarsan and more than seldom we have been greatly alarmed by circulatory collapse which has followed the administration of salvarsan in those cases especially in which symptoms and signs indicated particularly aggressive invasion of the heart-muscle.

We have been impressed with the observation that those cases which showed disturbances of rhythm as a result of the myocardial invasion are most likely to exhibit serious reaction after the use of salvarsan. We have therefore esteemed it to be good practice to begin the use of arsenic in these cases of heart complication by small doses, allowing the subsequent ones to be larger if no serious grade of reaction is excited. Of all the cases treated by us there were none in which any grave circulatory disturbance threatened as an apparent result of a maximum initial dose of mercury.

As a natural result of these observations we have in questionable cases, and when time did not seem to be of paramount importance, usually first placed the patient on mercury, giving the salvarsan later. We are of the impression that best results are often reached when the salvarsan injections are widely spaced in the course of routine mercury administration. The later injections of salvarsan are much less likely to give serious disturbance than the earlier, especially the first one. Of course it goes without saying that salvarsan is administered only as intravenous injections. It is a very difficult matter to judge, nor do we feel that our cases have been sufficiently numerous to permit of definite conclusions, but we are of the opinion that the old salvarsan is more efficacious in the relief of heart complications in syphilis than neosalvarsan. We have not been able to see that the newer form of the drug produces any less serious collapse than the old in those cases in which this incident arises.

THE IODIDS

We have extensively employed the iodids, mostly potassium iodid, in the treatment of these cases of heart invasion. In no instance, however, have we been able to convince ourselves that it acts in any way as a specific. Nor does it, according to our observation, check the progress in an aggressive case. For illustration, we have not found in cases of circulatory deficiency when drugs of the digitalis group failed to act, that results were obtained by combining the administration of the iodid. This, as we have already stated, is to be fully expected, especially in previously untreated cases both with mercury and salvarsan. We have not, however, tried out the iodids alone in cases of secondary syphilis in which heart involvement was present; hence, perhaps, we are not justified in definite conclusions, but we do not believe that this drug is to be considered as a specific in the treatment of active lues.

In tertiary cases, however, there is no doubt whatever in our mind but that the iodids materially assist in the clearing up of the infiltration and exudates, and their effect on gummatous tissue is too well established to admit of question. The point which we wish to make is that, while it is most useful in the absorptive stages of treatment, it does not act as a true specific. Iodin should be used after the case has been thoroughly mercurialized, or after salvarsan has been liberally given, and not before or during the early exhibition of these drugs.

THE EFFECT OF TREATMENT

That great clinical improvement takes place in most cases and a certain degree of benefit, though perhaps temporary, in practically all, is the most gratifying fact shown by this study. We are entirely convinced that as definite and brilliant results follow proper treatment in cardiac syphilis as in gumma of the brain, in syphilis of the bones or even in the local lesions of the skin and mucous membranes in the same stages of the disease. As to the question of permanence, we are not so certain, comparatively. This is quite as must be expected from the crucial nature of the organ and the very limited degree of restitution and compensatory hyperplasia of a functional type which may take place in lesions of the heart-muscle.

In regard to the manner in which the curative drugs act, we have but little absolute anatomic evidence, for in but two patients who died after what we have considered adequate treatment have necropsies been secured. Sections of the heart-tissue in these two cases (one reported[6]) showed a total absence of the characteristic perivascular cell hyperplasia and infiltration, or of active arteritis in the walls of the coronary vessels. In both instances, however, insulae of fibrosis were found isolated and perivascular in position which still showed evidence of fibrous hyperplasia, just as in simple fibrosis, but in neither were any lesions present which could be justly spoken of as luetic. In neither instance were we able to demonstrate spirochetae. In view of the report of Warthin already mentioned, however, we are not prepared to say that they might not have been present and our failure to demonstrate them may have been due to technical deficiencies; we can only say that anatomically, as clinically, all evidences of active syphilitic disease was wanting, although the scars or results of course remained.

In incompletely treated cases which came to necropsy we have without exception been able to demonstrate active lesions of a quite characteristic and unmistakable type.

In common with most who have recently studied large groups of any type of syphilitic disease we have not infrequently seen cases in which apparent clinical cure had taken place and yet in which a positive Wassermann reaction could be secured after a sufficient period of interruption of treatment had elapsed. We have looked on these instances as examples of probably cured syphilis in which a persistent Wassermann still remained. This opinion has been already expressed by us in a former paper.[7]

6. Brooks, Harlow: Am. Jour. Med. Sc., 1913, cxlvi, 513.
7. Brooks, Harlow: Clinical Observations Concerning the Heart in Syphilis, Interstate Med. Jour., 1913, xx, No. 6.

We have had abundant evidence of the fact that the fibrosis which follows on or occurs with the hyperplastic and degenerative alterations of the heart in syphilis are not removed by treatment; further, we are of the opinion, difficult to entirely prove, that this fibrosis may continue to progress even after the primary etiologic factor may have been entirely eliminated. Such is the general trend in fibrosis of nonspecific nature, and we are inclined to account on this basis for those cases which, while greatly improved or arrested by the treatment, still, in so far as cardiac fibrosis is concerned, continue to progress just as in those cases in which the lesion may have been excited by a rheumatism, a nephritis or the like. There is then a large group of cases in which definite limitation of actual cure is present.

THE LIMITATIONS OF TREATMENT

We are of the opinion that the limit of benefit for specific treatment in these conditions is commonly reached in tertiary or late cases, when the activity of the actual syphilitic process has been checked or cured and when thereafter by the use of the iodids a maximum degree of absorption and tissue restitution has followed, and when on top of this a maximum effect has been produced by the various drugs and methods designed for circulatory improvement.

Some such cases probably demand the occasional administration of mercury or arsenic. We have been unable in several such instances, however, to go beyond a certain point in beneficial treatment, and when in these the circulatory drugs begin to fail us, the downward progress is, in our observation, rapid, nor is it to be checked by any form of medication, specific or otherwise. The patients then assume precisely the same position as late cases of myocardial degeneration or fibrous substitution, such as may develop in the course of many other diseases. At post mortem these instances commonly show extensive patches of myofibrosis, or advanced disease of the coronary arteries with consequent muscle ischemia.

From our somewhat limited experience with cases of acute secondary syphilitic involvement of the heart, we are of the opinion that no limitation of result exists short of true cure except in those rare cases, similar to the one cited, in which specific drugs are entirely powerless. We are of the idea, it is true from a clinical basis only, that complete and absolute cure is to be expected in this stage of the complication.

WHEN SHOULD SPECIFIC TREATMENT BE ENTIRELY DISCONTINUED?

The answer to this question is most difficult. Obviously in some instances it must be continued after a negative Wassermann has been obtained; for we frequently find patients in whom activity is evident and yet who give a negative Wassermann. We have also noted above that we occasionally find patients still presenting a positive reaction who otherwise appear to be cured.

From our experience in the treatment of syphilis in other departments of medicine, as well as in circulatory involvement, it is obvious that medication of a specific character must be continued for a considerable time, at least one year, after all signs of activity have subsided. We believe, however, that better results are obtained by periodic rather than continuous medication in the final stages and also by variation of the type of the drug or in its form of administration.

We think that treatment should be continued just so long or longer as it is apparent that benefit is being reached either by the specific drug or by the adjuvant employment of a circulatory stimulant. We further believe from our clinical observation, and from our own as well as the recent anatomic studies of the heart-muscle in syphilis by Warthin, that antispecifics should be from time to time given throughout lifetime in certain cases. It is obvious that just so long as any evidence whatever of luetic activity in any part of the body is manifest, treatment should be vigorously pushed, though periods of interruption may be elected so that disease resistance toward the drugs falls off.

THE SUBSEQUENT MANAGEMENT OF THE CASE

We have just pointed out that, except in acute secondary involvement, we feel that antiluetic drugs may be occasionally beneficially exhibited throughout life even though they may not perhaps be directly indicated by the immediate appearance of the case itself. Aside from this, the subsequent management of the case should be essentially along circulatory lines and it should be carried out with the fact well borne in mind that practically certainly there are foci of fibrosis in the heart-walls, changes in the endocardium and in the walls of the coronary vessels which are in all probability irremediable and permanent.

This recognition appears particularly important in the determination of the proper hygienic management of the case, especially in regard to selection of occupation or sports and in the limitation of such habits as that of smoking. In late cases it can certainly never be assumed that we are dealing with a perfectly normal heart no matter how complete the cure may seem to be. While we make this statement, based on our considerable necropsy experience with these cases, from clinical observation alone one might well assume that complete cure even in some late and advanced cases had taken place. We do not feel, however, that any of these apparent cures have yet remained a sufficient number of years under observation to overthrow the lessons of pathologic anatomy.

THE PROGNOSIS

In acute cases, and in the secondary stage particularly, we believe that except in those instances in which resistance to the specific drugs is shown, a good prognosis as to cure may be given.

In cases in which incomplete or brief specific treatment only has been given, we believe that almost without exception great improvement may confidently be promised even in many instances in which circulatory measures alone show little benefit. When, after the patient has been thoroughly placed under the effects of the specific medication, the circulatory drugs still fail to act, the prognosis as to cure or further improvement is definitely bad.

Nevertheless, a bad prognosis as to relief or a considerable period of reasonable comfort and usefulness is never justified until the combined treatment has been thoroughly tried out. No more gratifying results are reached in chronic cases of any disease than are often shown in cases of this type, apparently at first thought altogether hopeless.

The prognosis in cases which have relapsed after marked or reasonable improvement is not good. Disturbances of rhythm particularly which have failed to show early and definite improvement under treatment rarely justify a good prognosis.

CONCLUSIONS

1. Cases of heart involvement in early syphilis may be fully cured irrespective of the character of the lesion by vigorous specific treatment alone and independent of circulatory measures.

2. Even well-established and late cases usually respond to treatment with cure, or marked though perhaps temporary benefit.

3. In most tertiary instances purely circulatory measures produce but slight benefit unless preceded by or combined with specific medication.

4. Interrupted or inefficient treatment establishes an immunity or resistance on the part of the lesions against the specific drugs employed. Hence the importance of vigorous and carefully systematized treatment.

5. The most satisfactory treatment is one which combines the use of salvarsan with mercury and the iodids. Combined treatment *may be* unnecessary in early cases but it is essential in late ones.

6. Salvarsan, preferably old salvarsan, produces in most instances the quicker results. It is capable, however, of inducing serious symptoms and in untried cases of heart involvement it should be administered in small doses until its action has been ascertained, particularly in those lesions characterized by disturbances of rhythm.

7. Mercury alone may produce apparent cure. Best effects are secured with this drug when its form is from time to time changed. Its use appears to be indispensable in all well-established cases.

8. The iodids are valuable adjuvants in the treatment of these cases, especially in their late stages, but they are apparently without specific action.

9. Permanent injury to the heart must be assumed to have taken place in late cases, even though prompt response to treatment and apparent cure occurs.

10. Successful treatment rests primarily on the recognition of the *cause of the disease* and on its specific treatment.

44 West Ninth Street—50 West Ninth Street.

THE FOUR COMMON TYPES OF HEART-DISEASE

AN ANALYSIS OF SIX HUNDRED CASES*

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To classify cases of disease according to their pathogenic agent or process, and not solely by naming the region affected or the function disturbed, is the ideal of scientific progress in medicine.

But until the last decade we have made little advance in this direction as regards the diseases which gravely disturb heart function. Thus we still find in standard text-books a section devoted to "mitral regurgitation," its diagnosis, prognosis and treatment, although mitral regurgitation is almost as vague a phrase as "spinal paralysis" or "brain fever." Just as a "spinal paralysis" may be due to trauma, to the tubercle bacillus, to the *Spirochaeta pallida*, to the organism of poliomyelitis or to cancer, so "mitral regurgitation" is only a symptom caused by the action of streptococci, by the degenerative lesions of arteriosclerosis, by the muscle-tiring resistance of nephritic hypertension and probably by many other causes. It probably contributes its mite to the downfall of cases of pernicious anemia, typhoid fever and puerperal sepsis. Hence there can be no rational prognosis or treatment of mitral regurgitation but only of the various underlying diseases in which this leak is a symptom.

A similar criticism applies to all diagnoses of "myocarditis." The micro-organism of rheumatism and of syphilis, the ravages of arterial disease and perhaps many other causes may produce the lesions of chronic fibrous myocarditis, with or without recognizable symptoms. A diagnosis of myocarditis is like a diagnosis of "ulcer"; it calls for an etiologic qualification, such as syphilitic or tuberculous.

The matter has many practical aspects. A sane prognosis and treatment of "aortic regurgitation," for example, depends on knowing or guessing what disease has produced it. Even physical diagnosis may have to await an intelligent interpretation of its results until we make up our minds what micro-organism is at work, in the heart, as well as elsewhere in the body. When we hear a low, rumbling presystolic murmur at the heart's apex and an early high-pitched diastolic along the left sternal margin, our conclusions about the mitral valve depend on our answer to the question, "Is syphilis or 'rheumatism' at work here?" If the former, then the mitral valve is probably sound; if the latter, probably diseased.

Four relatively new tests have now made it possible—as I think—to reclassify cardiac lesions more satisfactorily: the Wassermann reaction, the "red test"[1] of renal function, the measurement of blood-pressure and the roentgenography of the chest. When auscultation, percussion and the older methods of urinary examination leave us in the lurch, the four diagnostic methods just mentioned can often guide us aright.

With the help of these methods I have attempted a classification of 600 recent hospital cases in which a failing heart was the most notable feature. The results are shown in the accompanying table.

CLASSIFICATION OF CASES WITH FAILING HEART

	Male	Female	Total
1. Rheumatic	108	170	278
2. Syphilitic	52	22	74
3. Arteriosclerotic	53	40	93
4. Nephritic	59	58	117
	272	290	562 (93% of all)
Goiter heart	3	5	8
Doubtful cases	19	11	30
	294	306	38 (7% of all)
Total			600

THE RHEUMATIC TYPE

Under "rheumatic" are grouped the cases of weakened heart, adherent pericardium and valvular disease associated with (*a*) acute non-gonorrheal polyarthritis ("rheumatic fever"); (*b*) chorea (of Sydenham's type); (*c*) acute tonsillitis, and (*d*) "primary endocarditis" with negative Wassermann reaction, especially when the cardiac symptoms followed these diseases during the patient's youth. In my opinion it has been demonstrated by the converging results of Eng-

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1. Phenolsulphonephthalein.

lish, German and American work as the best working hypothesis that a streptococcus is the exciting agent of acute "rheumatism," chorea, endocarditis and tonsillitis.[2] This streptococcus in the joints produces acute rheumatism, in the brain chorea, in the heart endocarditis, myocarditis and pericarditis. It may attack the heart first and later the joints. Then our old terminology would make it appear that endocarditis is the "cause" of rheumatism. It may attack first the brain and heart, appearing later in the tonsillar or peritonsillar tissue. It may attack the heart and kidney simultaneously, so that we find true cardiac and renal disease from an identical organism, as Libman and others have maintained.

This form of streptococcosis is essentially a disease of youth, both in man and in the animal experiments of Rosenow. In 60 per cent. of the cases here analyzed the disease began (usually in the joints) before the twenty-second year. The patient rarely dies a mechanical or heart-death, usually an infectious death, by terminal, progressive or relapsing infection. Women are affected more often than men—nearly twice as often in these statistics.

The mitral valve, the pericardium and the myocardium are the favorite seats of bacterial invasion, the other valves much less often. In the valves this form of streptococcosis produces usually stenosis with more or less leakage—but almost never leakage alone. In other words, mitral stenosis is *the* rheumatic (or streptococcic) valve lesion, although it is combined with aortic stenosis in a relatively small percentage of cases. It rarely produces aortic stenosis without a severer stenotic lesion of the mitral. It seldom if ever produces severe symptoms or death by leakage (mitral, aortic or both) alone, though it often produces systolic apical murmurs alone.

On the other hand, it seems probable that stenosis at the mitral or aortic valves involves regurgitation as well in practically every case.

When a cardiac streptococcosis occurs in its most virulent and intractable forms, we call it "malignant," "ulcerative," "septic" or "slow" (endocarditis lenta) and we find in the blood (according to Rosenow) a streptococcus culturally distinguishable from the organism of the milder cases. Nevertheless, I have here included all such cases in the "rheumatic" group of my table.

If the patient survives the second decade of life his smouldering, often recrudescent, cardiac infection may die out, leaving a serviceable heart, despite some narrowing at mitral or even at the mitral and aortic valves. Such cases carry a good prognosis and are often compatible with twenty, thirty or forty years of hard work.

SYPHILITIC HEART-DISEASE

Most cases of "causeless" aortic regurgitation appearing in men between 20 and 40 without "rheumatic" history have a positive Wassermann reaction and may be considered due to syphilitic aortitis with or without aneurysm. In negroes and south Italians we find a great deal of this type of heart-disease because of the prevalence of syphilis among them.

I have included twenty-four such cases, together with the eighteen aneurysms, among the syphilitic group in my table. To these I have added a group of thirty-two failing hearts, with or without evidence of valve lesions, without rheumatic history, without evidence of nephritis or arteriosclerosis, but with a positive Wassermann reaction. The permeation of the congenital syphilitic's myocardium with spirochetes (as shown by Warthin and others) makes it probable that in adults as well, many cases of myocarditis are due to syphilis. Probably a more searching study would result in transferring some cases from the arteriosclerotic to the syphilitic column in my table.

ARTERIOSCLEROTIC HEART-DISEASE

Under "arteriosclerotic" are included the cases of weakened heart in elderly persons with sclerotic peripheral arteries and hypertension, often with angina pectoris, occasionally with cerebral or peripheral symptoms of the arteriosclerotic type, and always with negative Wassermann reactions. I do not attempt to decide the question whether any of the hearts of this group are weakened solely as a result of renal arteriosclerosis or whether generalized arteriosclerosis works part or all the mischief. In either case arterial disease is the cause. If anemia is present these cases more often belong in the next group.

With further knowledge this arteriosclerotic group could probably be subdivided into the plumbic cases, those of infectious origin, etc. The heart itself shows enlargement, weakness, often arhythmia or gallop-rhythm. Angina pectoris and the cerebral and peripheral evidences of arteriosclerosis are often present. Such patients often live many years in comparative comfort. On the other hand, they may die suddenly of coronary stenosis or cerebral hemorrhage.

NEPHRITIC (OR NEPHROGENIC) HEART-DISEASE

Volhard and some other modern authors would designate many of my "arteriosclerotic" cases as "benign chronic nephritis." But it seems to me more convenient to confine the term "nephritic or nephrogenic heart-disease" to the cases of weakened and enlarged heart apparently resulting from the hypertension of glomerulonephritis.

Such cases are associated with urinary anomalies more marked than those seen in the arteriosclerotic group. The hyposthenuria, the nocturia, albuminuria, cylindruria and especially the functional weakness with the "red test" are very marked. The response to cardiac stimulants and to drugs like theobromin sodium salicylate is feeble. Demonstrable arteriosclerosis of the peripheral vessels is slight or absent. Uremic manifestations, retinitis and anemia are relatively common. The patients of this group average 36 years of age, those of the arteriosclerotic group 59 years of age.

Cases with positive Wassermann reaction or marked history of rheumatism are excluded. The heart itself shows enlargement, an accentuated aortic second sound, sometimes a systolic murmur at the apex or base, often gallop-rhythm and valvular first sound, occasionally an absolute arhythmia. The usual prognosis is for not more than one or two years of life.

Most of the cases of "senile heart," "cardiorenal" disease, "myocarditis" and myocardial weakness have been grouped with the arteriosclerotic cases, some with the nephritic, a few with the syphilitic.

The table shows that 93 per cent. of 600 successive and unselected cases of failing heart can be pushed into one of these four groups. How much violence was used in the grouping process I shall try to suggest later on.

2. As well as certain cases of pleuritis, pericarditis, peritonitis, iritis, meningitis, pneumonia and nephritis.

THE EXCLUSIONS

Outside these four groups fall: (*a*) the "goiter hearts," that is, those showing no cause for weakness except a thyreogenic intoxication (exophthalmic goiter); (*b*) the "obese hearts," manifesting decompensation in very fat persons without streptococcic (rheumatic) or syphilitic infection, or arteriosclerosis, nephritis or thyreotoxicosis; (*c*) certain cases of myocardial weakness without any known cause. Had any of these occurred in athletes or ex-athletes they might have been called "athletes' heart." But they did not.

LIMITATIONS OF THIS CLASSIFICATION

One patient had a history of syphilis, a positive Wassermann and an aortic regurgitation; also a "rheumatic history," a continued fever, murmurs suggesting a mitral lesion and a pure culture of atypical streptococci in the urine. He seems to belong in two classes at once (Classes 1 and 2).

Three patients (two with necropsy) had a "rheumatic" heart and type of history; also a glomerulonephritis. There is good reason to believe that the same organism caused the two lesions. I have, therefore, classed these cases in the "rheumatic" (streptococcic) group despite the presence of a glomerulonephritis.

There are good grounds for holding that arteriosclerosis and glomerulonephritis may act conjointly and simultaneously to weaken the patient's heart. In my table the few cases which seemed to me of this type were grouped among the "doubtful cases."

Many believe that syphilis may cause arteriosclerosis. If so, Groups 2 and 3 of my table would in part coalesce. The "syphilitics" of this table are the relatively active cases with positive Wassermann.

SUMMARY AND CONCLUSIONS

1. Ninety-three per cent. of 600 recent hospital cases of failing heart have been found to group themselves without much resistance into four classes: rheumatic (streptococcic), syphilitic, arteriosclerotic and nephritic.

2. About 5 per cent. cannot easily be thus classified. The remaining 2 per cent. are "goiter" hearts.

3. In the 278 rheumatic cases females predominate: 170, or 61 per cent., to 108 males, or 39 per cent.

4. Sixty per cent. of these rheumatic cases began before the twenty-second year. The typical rheumatic heart patient is therefore a young girl.

5. Of the seventy-four syphilitic cases 70 per cent. were in men; only 30 per cent. in women. The typical syphilitic heart patient is a middle-aged man (average age 47), with aortic regurgitation and no rheumatic history.

6. The ninety-three arteriosclerotic patients averaged 59 years of age. The 117 glomerulonephritic patients averaged 36 years. The arteriosclerotics are therefore twenty-three years older than the nephritic. The sexes are about equally represented in the two groups.

7. Diagnosis, prognosis and treatment are put on a more rational basis if we give up the terms "myocarditis," "cardiorenal" disease, "aortic regurgitation," "mitral regurgitation" or qualify them with an adjective like "syphilitic," "rheumatic" or "arteriosclerotic."

8. Practically all the stenoses belong in the rheumatic group.

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CARDIORENAL DISEASE

THE CLINICAL DETERMINATION OF CARDIOVASCULAR AND RENAL RESPONSIBILITY, RESPECTIVELY, IN ITS DISTURBANCES*

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DEFINITION OF THE TERM "CARDIORENAL DISEASE"

The clinician encounters many cases, mainly in persons of middle age or older, in which evidences of cardiac weakness and other circulatory disturbances, such as high pressure, are associated with signs of failure of renal function or urinary indications of renal disease. When this combination of symptoms is of such character that the observer cannot readily assign to either the cardiovascular system or to the kidneys the preponderance of responsiblity, the term "cardiorenal disease" is often employed. The term, therefore, comprises cases of combined cardiovascular and renal disease without such manifest predominance of either as to justify a prompt determination of the one element as primary and important and the other as secondary and unimportant.

Among the pathologic conditions included in the term are three important groups: (1) primary valvular or myocardial disease with secondary renal disease; (2) primary arterial or arteriolar disease with secondary renal and myocardial disease, and (3) primary renal disease with secondary myocardial and vascular disease. It has long been an interesting and puzzling problem of the pathologists to determine the onset and initial stages of certain types of combined vascular and renal disease, and discussion of conflicting possibilities continues; but the clinician is called on to act at once in directing treatment in many of these cases when the clinical picture may lack clear indications to guide him.

A few examples of his difficulties will suffice to indicate the nature of his problems. A case of cardiorenal disease is mainly characterized by dyspnea, and in view of the evidences of cardiac and renal trouble, the determination of the responsible cause is difficult. Shall the physician rely on cardiac stimulation and hope for improvement from acceleration of pulmonary circulation, or shall he bleed or purge or sweat to remove the accumulated results of renal inadequacy?

A second case is one of stuporousness or actual coma in an aged person with evident arteriosclerosis, myocardial and renal disease. Shall the physician stimulate circulation with the thought that cerebral arteriosclerosis and possibly beginning thrombosis are responsible or shall he direct his treatment toward combating a uremic condition?

A third case is one in which attacks of acute pulmonary edema have occurred in a person with high arterial pressure, myocardial disease and manifest nephritis. Shall treatment be used to strengthen cardiac power without regard to pressure, or shall the renal element be adjudged the serious fault and active elimination employed?

In still another case in which a general failure of health and nutritional disturbance occur in a person suffering from cardiac weakness, arterial disease and nephritis, the physician must decide whether cardiovascular stimulation or eliminative methods are requisite.

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In any one of these instances, it might be suggested that the best way to treat the case would be to take into consideration all of its elements and employ such treatment as might reasonably seem effective against each of these. Such a course would perhaps appeal to one who has a merely theoretical knowledge of the difficulties involved, but never to a practical clinician whose whole training and experience would remind him that in complicated conditions successful treatment is always that which takes hold of the one important functional defect and corrects it. As well might one employ a combination of remedial measures to combat a case of generalized and complicated syphilis in which a recognition of the central cause and salvarsan or mercury were required!

As in other matters of treatment, the important underlying principle here is that the essential fault must be determined and if possible corrected. Any complicated combination of measures directed toward this and that is an indication merely of indecision and inefficiency. Effective remedial measures are almost always simple and direct. Let us take lessons from our surgical colleagues: A protracted medical treatment of vague gastro-intestinal troubles fails and the disease yields to the removal of a damaged appendix; an obscure case of illness, with occasional fever, emaciation and a variety of symptoms terminates when a calculous pyelitis is recognized and the stone is removed; a long-standing "rheumatism" of the ankles and knees subsides when fallen arches are supported. None of these ought especially to be heralded as triumphs of surgery, but should rather be regarded as instances of previous failure of medical diagnosis.

Treatment directed toward symptoms or even functional disturbances without recognition of the real source or cause of trouble is almost sure to fail. Nowhere in my opinion is this more frequent than in the domain of cardiorenal troubles. One uses intensive treatment to modify blood-pressure, another attacks a supposed uremic trouble with active eliminative measures, a third believes the cardiac symptoms significant of the fundamental fault, and a fourth eases his conscience by a combined treatment of a variety of possibilities without subjecting himself to the test of determining what he really thinks is the fundamental defect.

THE CLINICAL INDICATIONS OF CARDIORENAL DISEASE

The group of cases included under this term presents a varied systomatic picture. Dyspnea, continuous or paroxysmal, high arterial tension, a pallid (arteriosclerotic or nephritic) appearance, palpitations and sometimes substernal or precordial pain, sometimes edema of the extremities and effusions in the serous cavities, headaches, neuralgias and various cerebral disturbances, polyuria or reduction in the amount of urine, disturbances of vision, gastro-intestinal disorders and heaviness, stupor or even coma are among the prominent symptoms encountered. Physical examination discloses enlargement of the heart and evidences of cardiac weakness, sclerosis of the vessels, albuminuria and casts, in varying degrees of prominence. As the disease advances, increasing evidences of circulatory embarrassment on the one hand or of renal inadequacy on the other hand manifest themselves, and the terminal end may be quite clearly a circulatory or a renal death; but even up to the last there may be difficulty in determining the major fault. Particularly true is this in patients dying in coma when the possibilities of cerebral hemorrhage and uremia seem equally balanced, and in cases of severe paroxysmal dyspnea. From the very beginning, however, the physician finds it necessary to make a decision and direct treatment accordingly.

In reaching this decision he will find value in considerations that may be classified under the following heads: the history; the cardiac physical signs taken in conjunction with the blood-pressure and urinary examinations; the functional renal tests; the nutritional condition of the patient; ophthalmic findings, and therapeutic tests.

THE HISTORY

Of the three groups of pathologic conditions comprised under the general heading of cardiorenal disease, that which most frequently presents a clinical history of value is the combination of valvular or myocardial disease with secondary nephritis. Here a long-standing cardiac weakness is indicated by the history of onset after some severe infection, by the early dyspnea, edema, palpitations, arhythmia, etc., and by the discovery of marked physical signs of cardiac deficiency. Only in cases coming under observation late in the disease, in which marked evidences of nephritis have developed and in which the earlier clinical course is unknown, are the difficulties particularly great. Even such cases, however, present a sufficient predominance of indications of cardiac failure to emphasize the cardiac rôle in the clinical complex.

The difficulty is more decided in purely myocardial cases than in valvular disease. In the second and third groups of cases—those in which primary arterial disease has occasioned renal trouble or in which primary renal disease has initiated the whole series of lesions—the history is less significant. Sometimes, it is true, a history of renal trouble following an acute infection like scarlet fever, septicemia, pneumonia, or the like may stand out prominently; but much more often the beginning stages of nephritis are inconspicuous, and the history is entirely obscure. In the cases of primary arterial or arteriolar disease the onset and early course are so insidious that the history furnishes little clue to the nature of the disease. Formerly this group of cases was regarded as common and the picture drawn by Gull and Sutton of arteriocapillary fibrosis was accepted as adequate to explain many of the cases of cardiorenal disease which we are now considering. In more recent years the importance of renal disease as the initial cause of high arterial tension and of arteriosclerosis has been exaggerated to the practical exclusion of the older view. As usual the pendulum of opinion has swung too far, and there are abundant evidences that it is returning toward the older position.

If the pathologists and experimentalists have found it difficult to determine whether the renal or the vascular trouble is primary, how much more difficult is the clinician's task in forming an opinion of the relative significance of the two elements at a given time? The history of the cases can give only meager clues: sometimes the mode of life of the patient, his general appearance and the state of his blood-vessels taken in relation with the cardiac or renal conditions, a history of syphilis (especially in young cardiorenal patients) and other items of history, may furnish a certain amount of aid; but surer ground is reached when a study of the whole circulatory system is considered in relation with direct determinations of the renal function, with the urinary findings and with chemical examinations of the blood. These data will be discussed in succeeding paragraphs.

THE CARDIAC PHYSICAL SIGNS CONSIDERED IN CONJUNCTION WITH THE BLOOD-PRESSURE AND URINARY EXAMINATION

In Group 1, especially in valvular cases, cardiac enlargement and particularly enlargement toward the right is significant. The importance of this may be appreciated by contrasting a case of primary valvular disease marked by intense dyspnea with one of chronic interstitial nephritis attended by dyspnea. In the former right-sided enlargement, cyanosis, hepatic congestion and other indications of venous stasis direct attention to the heart; in the latter dyspnea is practically independent of weakness of the right heart, and right-sided enlargement is usually absent. Confusion is especially apt to occur when, as a result of renal hypertension, progressive enlargement of the left heart has finally occasioned mitral incompetency and a systolic murmur at the apex. Such cases are frequently regarded as purely valvular disease by those who overemphasize the significance of murmurs. In these cases the dyspnea (often quite paroxysmal), though primarily renal, may be in part cardiac. It is largely due to weakness of the left ventricle and to the sudden disproportion in the amount of blood thrown into the lungs by the right heart and that removed from the lesser circulation through the left side. Intense dyspnea of this type may be unaccompanied by any evidence of enlargement of the heart to the right.

A second point of importance in the physical examination is the character of the murmur heard over the heart. I am leaving out of consideration diastolic murmurs which are only rarely secondary to high arterial tension and renal disease, and wish to direct attention to the systolic apex-murmur that may be significant either of primary mitral regurgitation or of mitral incompetency secondary to high tension and left ventricular dilatation. In the latter case, I have quite commonly observed that the time and character of the systolic murmur differs greatly from that found in the former case. In primary mitral regurgitation, the systolic murmur always occurs in the early part of the systole, sometimes so early that it quite overshadows the first heart sound; while in the mitral leakage following continued high tension, the murmur is so late in systole that the first sound is heard an appreciable interval before the murmur and the second heart sound follows immediately after the murmur. Figure 1 will indicate the distinction. Not rarely in slow-acting hearts the lateness of the systolic murmur is at first confusing and suggests a diastolic murmur, but the second sound following immediately after it disproves this supposition. A late systolic murmur of this type is almost always significant of beginning cardiac failure in cases of hypertension. In a few instances I have found it in mitral valve disease. Perhaps it was this murmur to which Austin Flint called attention under the name of prediastolic murmur and which he regarded as due to the back flow of blood in an atheromatous aorta just preceding the closure of the aortic valve. In view of present knowledge this explanation is, of course, inadmissible, and I do not wish now to discuss the cause of the time relations of the murmur. The reference to Flint is made only to indicate that he had doubtless observed the same murmur under the circumstances now under discussion. It should be added that the systolic murmur heard when the heart begins to fail in cases of hypertension is not always of this late character. In many instances it is precisely the same in time and quality as the murmur of primary mitral regurgitation.

Comparing blood-pressure with cardiac findings, the striking fact is the usual low tension in primary cardiac cases even when considerable renal disease has been superadded, and the reverse conditions in arteriolar and renal disease. In the latter conditions, even when terminal cardiac failure has advanced considerably, arterial tension is likely to remain high. It has often been said that the arterial pressure may be low in arteriosclerosis and renal disease, and without doubt there are many cases in which it falls as cardiac weakness increases. The reduction in tension, however, is often less real than apparent because too frequently the systolic pressure alone is considered. The clinician may be deceived by reductions of systolic pressure from 180 to 140, 130 or even lower figures, when he has not noted that the diastolic figure has remained quite constantly at 110 or 115. Such values of the diastolic pressure in cardiorenal cases are practically always significant of arteriolar or renal disease rather than of primary cardiac disorders.

The urinary findings in cases of primary cardiac disease contrast with those of primary renal disease mainly in their variability. When frequent examinations are made, the amount of albumin and the number of casts, red blood-cells or other cellular elements vary far more in the former than the latter, though without doubt considerable variations may occur in certain renal cases. However, no safe conclusion as to the relative importance of the cardiac or renal participation in the manifestations of cardiorenal disease can be drawn from the ordinary examinations of the urine. Just as the discovery of a systolic mitral murmur frequently leads to the erroneous impression that a case of nephritic hypertension with failing cardiac power is one of primary mitral disease, so the early discovery of albumin and casts may occasion the faulty diagnosis of primary nephritis in cases of valvular disease.

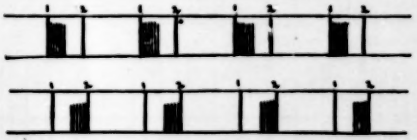

Fig. 1.—The upper figure represents the time relation of the systolic murmur of mitral regurgitation in disease of the mitral valve; the lower shows the time of the murmur (late-systolic) in cases of hypertension without valvular disease. The numbers 1 and 2 indicate the first and second heart sounds.

FUNCTIONAL RENAL TESTS

Among the functional tests in use at the present day are the following: the phlorizin test, the determination of the time relations and quantity of excretion of potassium iodid, sodium chlorid, milk-sugar, indigocarmin and phenolsulphonephthalein. Each of these has certain advantages but I shall speak only of the last as my data regarding this are most abundant. The results obtained in cardiorenal disease are sometimes highly valuable, when due allowance is made for possible errors and for temporary variations in the degree of elimination. Among the causes of error one must consider especially the possibility of slow absorption in cases of edema and marked circulatory weakness, but with proper injection into the lumbar muscles this

error is only occasionally considerable. If the normal elimination in two hours is placed at from 50 to 60 per cent. of the total coloring matter injected, the figures for primary cardiac disease with secondary nephritis are only moderately reduced, the findings varying from 30 to 40 or 50 per cent.; in primary renal disease, especially in certain advanced types, the figures fall to 20, 15 and even to 10, 5 and finally in some cases for a considerable period before the fatal termination to 0. I find the test of less value in distinguishing primary nephritis from that secondary to cardiac weakness than in differentiating certain arteriolar cases from cases of primary chronic nephritis.

In making this statement, I must first of all admit that to a certain extent the claim to recognize primary arteriolar cases is an assumption; but clinicians will recall cases of continuous hypertension with excessive pressures varying from 200 to 300 systolic and from 120 to 150 diastolic, in which the physical signs indicate considerable diffuse arterial thickening (hard vessel-walls, increased substernal dulness, ophthalmic findings) and the symptoms are almost wholly those of hypertensive cardiac embarrassment. These cases

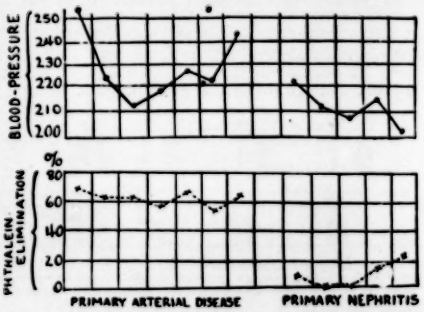

Fig. 2.—Seven typical cases of primary arterial disease with secondary nephritis and five cases of primary chronic nephritis are tabulated to show the hypertension in each group and the normal or excessive elimination in the former contrasted with the greatly reduced elimination in the latter.

may continue for years (six or eight under my observation in several) without any evidence of renal inadequacy.

Cases of this type occur in persons from 40 to 50 years old more frequently than in younger or older persons, and are more common in women than in men. The appearance of the patients contrasts sharply with that of cases of primary interstitial (or advanced types of parenchymatous) nephritis. They are frequently well nourished; often (especially women) somewhat fat; of fair color; the blood is usually normal in its hemoglobin content and the number of red corpuscles; there is little in the appearance of the patient to suggest grave illness. The non-coagulable nitrogen of the blood is within normal limits in these cases and not influenced by forced feeding with protein foods otherwise than in normal persons. The urinary examinations usually show mere traces of albumin and a few hyaline casts. The impressive facts are the continuous high arterial tension and the evidences of cardiovascular embarrassment and disease. Practically all of the cases which I have seen have been in the consulting room; there is little in the symptoms that I have recited to occasion such patients to seek hospital treatment. In other days one would have with little hesitation described such cases as instances of the earlier stage of arteriosclerosis, but in recent times the tendency to ally continuous hypertension with renal disease has caused many to overemphasize the renal element which undoubtedly exists. In view of the appearance of such patients, their subsequent history (ending in cardiovascular death) and among the clinical findings the ophthalmoscopic picture and the results of study of elimination through the kidneys, one may, I feel, with reasonable certainty separate these cases from primary renal disease. The elimination as is shown in the chart is practically normal or above normal. This is so strikingly in contrast with the condition in primary nephritis that I have placed the findings in the two groups side by side (Fig. 2).

A contrast picture is furnished by primary nephritis not only in the matter of phenolsulphonephthalein elimination but also in the appearance of the patient and the entire clinical course. I have in mind here only cases of primary chronic interstitial nephritis and certain late forms of parenchymatous nephritis which cannot be differentiated during life. In these cases the patient is usually much younger, between 20 and 50 years; his color is sallow, pallid, often almost icteroid; he is apt to be emaciated, the tense and tortuous temporal and brachial vessels stand out strikingly (partly as a result of emaciation), the blood is distinctly (often excessively) anemic; gastro-intestinal disturbances are frequent and a heavy coating of tongue and heavy or even fetid breath are noticed; a somewhat urinous or uremic odor may be present for long periods before actual uremia occurs. The blood-pressure is as high as in the average of the other group but less frequently attains the highest figures obtained in such cases. The ophthalmic findings are in distinct contrast. While hemorrhages may occur in both, the picture of so-called albuminuric retinitis is not seen in the arteriolar cases. The dictum of ophthalmologists that nephritic patients with hemorrhagic retinitis rarely survive for more than two years is doubtless correct for cases of primary nephritis, but must not be extended to the other group. I have frequently found, in the latter, survival for several years and in one at least have known recurring attacks with improvements by absorption of the blood in the intervals, running over a period of thirty-one years. The patient eventually developed increasing evidences of the nephritic side of his malady, but nevertheless finally died a cardiovascular death. The phenolsulphonephthalein elimination in the primary nephritic cases is always markedly reduced and may be as low as 5 per cent. for long periods and sometimes may be nil for weeks before death. There is less frequently substernal dulness. Non-coagulable nitrogen in the blood customarily reaches high figures—from 70 to 80 and even 110 or 120 mg. per hundred cubic centimeters.

The terminal symptoms of these cases (Group 3) are very different from those in the arteriolar cases. Increasing headaches and disturbances of vision, recurring attacks of vomiting and finally pronounced uremia terminate the condition, commonly before the age when the other form of disease becomes manifest.

OBSERVATIONS OF THE QUANTITY OF THE URINE AND OF ITS PHYSICAL CHARACTER

These are important aids in the recognition of the type of cardiorenal disease. In the primary cardiac

group the urine is almost always scanty and, in consequence, of higher color and specific gravity than normal.

The variability of the chemical and microscopic findings has been mentioned, but it may be added that the urinary output and the character of the urine are closely dependent on the condition of the circulation from time to time. The renal element in these cases manifestly influences the condition of the urine far less than the cardiac and circulatory. In arteriolar cases considerable polyuria is a frequent but by no means constant condition—even when blood-pressure is enormous. The urinary findings are variable from time to time. Traces of albumin may occur at times and vanish at other examinations, tube casts are scanty as a rule and may frequently be absent. In other cases, constant albuminuria and cylindruria may be noted. One distinction in the urinary output and findings of this type of cases that has impressed itself on me is the variability in the urine of the day and night. More frequently than in primary nephritis the quantity of the night urine is greatly in excess of that passed during the day, and the specific gravity is considerably lower. This contrast in the night and morning specimen of urine may be a clue to the condition present. Somewhat the same observation, but rarely so striking, may be made in cases of the primary cardiac group.

OPHTHALMIC FINDINGS

Sufficient has perhaps been said regarding the distinctions in the findings of the ophthalmoscope in primary arteriosclerotic versus nephritic cases. It may be added here that one feature common to both, hemorrhage, has been overemphasized. Too commonly this is regarded as synonymous with albuminuric retinitis and false deductions drawn. The discovery of marked arterial changes in the retinal vessels with or without hemorrhages should suggest a careful scrutiny of all the clinical features of the case to determine whether the nephritis is primary or secondary. Probably no single test applied to such cases exceeds a careful ophthalmoscopic examination in the reliability of the diagnostic and prognostic indications afforded by it.

THERAPEUTIC TESTS

Only the barest suggestions of the sort of information derivable from therapeutic tests need be made here; and it should be added that not too great a reliance should be placed on such data. In typical cases, however, of the three groups one may observe quite striking differences in the response to certain plans of treatment. The marked response of primary cardiac cases to digitalis and other cardiac tonics is sometimes fairly diagnostic in significance. Rarely ever does one see anything approaching this response in the other groups, even when second cardiac failure has become a marked feature. In the second group one finds the most satisfactory results from the diuretics of the caffein group. Rarely in other cases does one see the same enormous diuretic effect from caffein or theobromin salts. In the third group far more striking than in the other two diaphoresis—baths, pilocarpin, etc., sometimes yields satisfactory results. There are, of course, many intermediary cases in which therapeutic tests are confusing just as the clinical findings are of uncertain significance.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BROOKS AND CARROLL, CABOT, AND STENGEL

DR. E. LIBMAN, New York: For some time past I have been classifying the more common cardiac lesions as follows: Two main groups of cases may occur alone or in combination. The first group is that of valvular disease, or valvular defect, and the second, endocarditis. The valvular defect may be due to the virus of rheumatism or of syphilis, or to atherosclerosis. The endocarditis may be acute, subacute, or chronic, and may occur in a previously normal valve or in a previously diseased valve. It may be due to the organism of rheumatism or it may be due to the various forms of streptococci, staphylococci, or other organisms. The subacute and chronic forms are practically always due either to the endocarditis coccus (so-called *Streptococcus viridans*) or rarely to the influenza bacillus. I have seen three cases of infection of a syphilitic valve by the endocarditis coccus (*Streptococcus viridans*). Taking Dr. Cabot's classification the prognosis in the various groups is, in general, as follows: In the group of valvular diseases due to rheumatism the outlook is governed by the degree of the lesion present, the condition of the heart-muscle, the mode of life of the patient, and the occurrence of various forms of endocarditis. In the syphilitic group the result will depend to a great extent on how much damage has been done before the patient comes under treatment, how much the coronary arteries are involved by the disease and what other lesions are present in the system. In the atherosclerotic group the prognosis depends to a great extent on the degree of loss of elasticity of the vessels and on the involvement of the coronary arteries, especially their orifices. In the nephritic group with hypertension, the prognosis again depends on the changes in the aorta and in the coronary arteries, the degree of the nephritis and the mode of life of the patient.

DR. S. SOLIS COHEN, Philadelphia: No subject was more neglected in the teachings of twenty-five years ago than etiologic diagnosis; nothing needs greater emphasis to-day. In my own classes I go a little further than Dr. Cabot has, not only with regard to the heart, but also with regard to the whole organism, to every form of disease and injury. I shall discuss, however, only the heart. Although we use the term diagnosis, this classification is important also in prognosis and in treatment. First we have the clinical diagnosis, let us say "cardiac decompensation." Then the anatomic diagnosis, let us say "mitral obstruction with insufficiency"—or "muscular disease," or "aortic" that is, "arterial disease." Here the distribution of the lesion is of great importance—as, for example, in Dr. Libman's illustration of involvement of the openings of the coronary arteries. Then comes the pathologic diagnosis. Have we a morbid process—intoxication or tissue change—in progress, or are we dealing only with its results? We must discriminate infection with its intoxication and affection with its progressive tissue changes from the resultant infirmity—the impairment, the deformity, the interference with function produced by the scar-tissue and adhesion and muscular degeneration which remain when toxemia, inflammation and all active processes are past. The etiologic diagnosis comes next—syphilis, rheumatism, typhoid, whatever it may be. Only when infection or affection still persists does the etiologic diagnosis affect treatment. If they have ceased, we have to remedy, if possible, structural and functional results, but we cannot do this by treatment which concerns the infecting agent only. It seems to be a fact that in syphilis, the infection does persist, and the affection—the progressive tissue change—does continue, almost indefinitely.

Dr. Brooks' paper on the syphilitic heart is thus highly important, in that it directs close attention to this often insidious and obscure form of cardiac disease. I would ask Dr. Cabot if, in continuing his valuable statistical studies, he will tell us something about the anatomic distribution in the syphilitic cases. I have been in the habit of teaching that the large majority of cases of "myopathic heart"—I don't like the term myocarditis, which means both too much and too little—are syphilitic in origin. Aortitis, too, is most fre-

quently syphilitic; and neither luetic myopathy nor luetic aortitis is recognized as frequently as it should be. I have seen cases of both called asthma, and cases of aortitis frequently mistaken for aortic stenosis or aortic insufficiency, or, when anginoid or true anginal symptoms were produced, termed angina pectoris, but without recognition of the syphilitic origin. And other mistakes, too, are common. I have not, however, met many cases of pure mitral insufficiency that I could call syphilitic.

I agree with Dr. Brooks that mercurialization is the most efficacious treatment. Salvarsan helps; but if I had to choose between salvarsan and mercury, I would choose mercury. Fortunately, we can use both. My preference is to begin with inunction and push it to the point of mild ptyalism—to "touch the gums." Then the patient should be given a sweat-bath of some kind and put on iodids for a week or two. After this, salvarsan, preferably by intravenous injection, can be used. After a week or so, however, mercury is to be resumed, alone or in conjunction or alternation with iodid. The oral or hypodermatic method is now indicated. Salvarsan, too, may be repeated later. It is always important to follow or accompany the mercurial or mercurioiodic course with repeated sweat-baths. Bartholow advised pilocarpin, but heat usually answers. By persistence in this course, great amelioration, or as Dr. Brooks says "clinical cure" can be produced.

DR. CHARLES SPENCER WILLIAMSON, Chicago: Our success in these cases depends largely on the recognition of the underlying etiologic factors. There are three classes of cases which one finds in general hospital and dispensary practice for which Dr. Cabot has no place in his scheme of classification. 1. In a large number of cases of myocardial failure the right heart is exclusively or largely involved. These cases rise from pulmonary conditions such as emphysema, chronic bronchitis, occasionally long-continued asthmas, obliterative pleurisy and some other pulmonary conditions. The mechanism of these is essentially the same, that is, an interference with the flow of blood through the pulmonary capillaries, and hence an increased amount of work for the right ventricle. It is a sort of multiple pulmonary capillary stenosis, and in time leads to the well-known picture of failure of the right heart. 2. The group of hypertrophies of the right heart due to kyphoscoliosis. These are not so commonly seen here as in some European clinics, as in Saxony, for instance, yet they are far from rare. I do not think it is sufficiently appreciated that the "normal" ending of the kyphoscoliotic is, in most instances, due to failure of the right heart. The deformity, by obliteration of large parts of the lung with its contained capillary systems, leads to hypertrophy and, in time, stasis dilatation of the right ventricle, which marks the beginning of the end for the patient. 3. The group of the primary cardiac overstrains. I hesitate to mention this group because in many, possibly most of them, other factors coexist. Many show a positive Wassermann reaction.

DR. LOUIS FAUGERES BISHOP, New York: The trend of medical thought is away from organic disease to a belief in general cellular disorder of all cells, but showing more in one part of the body than another. We are under the leadership of Vaughan and others, who are developing a glorified cellular pathology in continuation of the work of Virchow, which he began fifty years ago.

DR. ROBERT N. WILLSON, Philadelphia: I hesitate to question the accuracy of Dr. Cabot's closing assertion that mitral stenosis has no other etiology than rheumatism, because I am reluctant to believe that I heard him correctly. From my own collection I could show him a number of specimens presenting high-grade stenosis of the mitral valve in the entire absence of rheumatism, tonsillitis, chorea, throughout the history of the case. Sclerotic involvements of the mitral valve are by no means rare in which neither syphilis nor rheumatism can be determined as a causative factor. I have seen more than one young adult of tuberculous parentage with all the classical signs of mitral stenosis; and in several instances have confirmed the diagnosis at necropsy. I refer only to cases in which rheumatism, chorea and tonsillar infection could be excluded from the history. With respect to Dr. Cabot's classification of heart affections, I confess I hear a new one proposed with considerable regret. It is tempting and in some features attractive. But it is neither accurate nor comprehensive. It encouraged the very slovenliness of diagnosis which he aims to prevent. One should be sure that there is a distinct advantage in new classifications before they are foisted on a long-suffering medical public. Thus Dr. Cabot insists on etiologic terms, and straightway himself uses three main divisions, not one of which is finally "etiologic." For example, who can at this day say just what the term "rheumatic" implies. Surely there could be no more vague term. Why not substitute the specific cause of the "arteriosclerosis" in Dr. Cabot's second division, if we are to accomplish his primary aim? What less definitive term could be used from the point of view of etiology than "nephritic?" How and why does nephritis cause heart-disease? If through mechanical causes, why not say so; if through a toxin, why not indicate the form of toxemia? Who knows after all that such a toxin finds its origin in the kidney, and not in the intestine or the liver? "Nephritis," therefore, would also seem to be an indiscriminate term for classification. "Syphilitic" alone is truly etiologic, and even this heading must include many cases that are "arteriosclerotic" and perhaps "nephritic" in origin. No room is provided for the congenital lesions, for the many mechanical cardiac cripplings secondary to such pulmonary involvements as emphysema and chronic tuberculosis. Few lung diseases leave a normal heart in their trail. Finally, the toxemias, such as tuberculosis, the cardiopathies of which have been so well described by Anders; of typhoid fever, the heart degenerations of which have been recognized for decades; of the pneumonias, the very definite cardiac muscular changes which I had the privilege of demonstrating at some length. Dr. Cabot provides no classification that will properly include these and other cardiac involvements, perhaps the most striking of which are the heart paralyses of diphtheria. Perhaps it were better not to venture at all at this time of unrest and constant shifting from etiologic base to etiologic base. At least, if we do, the venture should be in the direction of a real etiology and not of vague names. For a time we can well afford to adhere strictly to (*a*) valvular and (*b*) muscular subdivisions, with a specific statement in each case as to the causal factor.

DR. GRAHAM E. HENSON, Jacksonville, Fla.: I am glad to hear mercury and salvarsan spoken of as the treatment for lues rather than salvarsan and mercury. For so many years salvarsan and other agents have been trying to steal the laurels which rightly belong to mercury that it is gratifying to see the drug now come back into its own. While salvarsan is a valuable agent in the treatment of various syphilitic lesions, it should not be considered a substitute for mercury. I was glad to hear Dr. Brooks advocate the treatment of these syphilitic lesions with mercury in addition to salvarsan.

DR. RICHARD C. CABOT, Boston: I have never seen mitral stenosis proved to be due to any cause except rheumatism. I believe it is due to rheumatism and to nothing else. Tuberculous heart affections are so rare that they may be disregarded. The terms "arteriosclerotic" and "nephritic" are local classifications, not etiologic. This is a pity, but till we know more of etiology we must use partly local terms. Among the causes of these affections we have lead, but we cannot make a separate division for it. Dilatation of the right heart secondary to lung conditions has, in my experience, always something else in the background, usually arteriosclerosis. Only a few cases of emphysema give a failing heart without arteriosclerosis. I doubt whether a sound heart can be broken down by muscular work alone. I heartily agree that treatment cannot always be based on these etiologic classifications, but must often rest on a symptomatic basis. What Dr. Libman calls "bacterial endocarditis" used to be called "ulcerative endocarditis." If there were any sharp and clear difference between this and the rest of the rheumatic group we should know it. So far I do not think satisfactory differentiations have been given. Most cases of the "cardiorenal" group should be classed either as arterio-

sclerotic or as renal. Cardiorenal is a bad term and only to be used when we cannot find another.

DR. HARLOW BROOKS, New York: One of the most important prognostic factors is the early recognition of the involvement of the heart, because early treatment unquestionably spells cure. If not seen early, prognosis may be bad owing to the fact that the late lesions are largely fibrotic and therefore not capable of total eradication. Dr. Cabot's classification is a most valuable one, although it cannot as yet be very widely applied. Most of us now believe that a considerable percentage of hitherto unclassified myopathies of the heart are of syphilitic origin.

DR. ALFRED STENGEL, Philadelphia: Dr. Cabot has denied stating that the etiologic treatment may be the only treatment to be applied. Improve the etiologic classification and it will lead to an etiologic treatment based on it. The kernel in the nut is that syphilis is an important cause of heart-disease and it should not be forgotten. Etiologic treatment is out of the question. Later on, however, it might lead to something else.

DISCUSSION OF THE SURGICAL THEORIES OF INTESTINAL STASIS

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NEW YORK

The time is now at hand to take account of results brought about by the various surgical procedures of short-circuiting the intestine. The end-results are of chief importance. During the enthusiasm of the past propaganda, it was almost impossible to draw clear and wise conclusions. I hope that I can add a little to the meager knowledge of the subject as it seems to be understood at present.

The question arises, Has Mr. Lane proved his procedure to be wise? To the surgeon calmly observing the results there is but one answer—No.

In our own country many enthusiastic surgeons have performed these operations and many of these cases are now coming under medical observation again for relief of symptoms, as a rule, the same as were present before operation. These results remind us of the unnecessary ovariotomies, nephropexy, indiscriminate appendectomies, anchoring mobile cecums, and operations for splanchnoptosia. In all of these, practice and time have softened early enthusiasm, for finally the cases in which such surgical procedures proved useful were found to be much fewer than was believed in the beginning. This knowledge was obtained through surgery alone, in reviewing not the operation or the operator, but the shortages of results that could be accomplished. What now is the status of affairs regarding short-circuiting operations for intestinal stasis? When do results show that they are worth the while? And what are the limitations?

THEORY OF LANE AND JORDAN

This, together with Kellogg's and Case's theory, cannot be disassociated from the Roentgen ray, because the determination of cases on which surgery is done, so far as their work is concerned, is made or proven by the Roentgen ray mostly. The Kellogg and Case portion will be taken up in connection with their own theory.

The diagnosis of chronic intestinal stasis is made by Lane on the basis of certain clinical phenomena and Roentgen-ray examination. The clinical picture that Lane describes is well known to all and has been known for many years. Laparotomy is performed on the patient who presents a "toxic" condition and in whom Roentgen-ray examination indicates imperfect drainage. Lane emphasizes a long series of affections brought about by enfeebled resistance which the tissues offer to the invasion of microbes. The definition of stasis which Lane has given leaves only a matter of body-drainage to deal with—obstruction or retention in one part of the gastro-intestinal canal which sooner or later contaminates the entire area drained by the system. In his view, abnormal retention in one part of the intestinal tract eventually contaminates the entire system. Certain bands holding portions of the intestines in fixed positions and causing angulation, are mentioned as the important factors in bringing about local delay. These bands are found at the junction of the duodenum with the spine, the duodenojejunal junction, the lower ileum within a few inches of its termination, and in the vicinity of the appendix. These, in the upright position, permit the movable intestine, proximal and distal to them, to drop, and as this continues, these bands thicken, shorten, causing more delay and even obstruction. The stasis of food is supposed to begin from the kink at the lower ileum, and toxemia developing above it, the kink at the duodenojejunal flexure is caused. Then follows dilatation of the duodenum with a possibility of ulceration and obstruction of the stomach with dilatation of that organ. These "evolutionary" bands in connection with toxemia, have only a mechanical aspect and are supposed to be caused by a postural strain from the upright position.

Anyone can show that at least 18 per cent. of all people have a Lane or ileal kink, and that in the vast majority of these cases some delay exists, but no toxemia. It can also be shown that in by far the largest number of those who come under medical observation, a Lane's kink exists that is not responsible primarily for the symptoms. In 167 cases of definite Lane kinks noted by me by Roentgen-ray examination, in only five instances did this kink cause definite delay and I am now strongly of the opinion that unless the ileum is dilated proximal to the kink, the kink is not significant. The same is true of the other kinks.

It is decidedly more reasonable to believe that these bands have been developed in the course of human evolution in a prominent way to hold the movable intestine at fixed points for proper function. I have observed several cases in which operation has been made for Lane's kink, in which, after six months or a year, the bands have reformed and I believe them to be more a factor of physiologic importance than of surgical significance. When at these band areas a definite kink takes place, causing stasis, it is because the intestine has elongated and sagged primarily; not because the kink is obstructive, causing a secondary elongation and sagging. What the cause of this primary elongation and sagging is, is susceptible of proof and will be presented in my own theory.

In instances of ileal kinks, which are supposed to cause stasis at that point, further study made it most logical to believe that if the kink was a significant factor, after an ileac-implantation had been done, no delay in the upper small intestine or stomach should

be met with (providing there had been no kinks left above it), and yet, to my knowledge, in five cases in which this operation was done, a rapid transit through the lower part of the small intestine could be proved, but no benefit to the exit from the stomach and the passage through the first 15 inches of the small intestine. The delay shown by the Roentgen ray at these upper levels continued just the same after the implantation in every case but one, and in this but little benefit could be noticed.

Regarding the responsibility of intestinal stasis for ulceration of the duodenum and stomach, experience has proved that in most of the cases of ulcer met with there is no intestinal stasis, and that surgical procedures for the intestinal stasis do not cure the ulceration of the duodenum or stomach, or prevent the ulcer from returning if the case is of that type. If the ulceration was due to stasis, implantation would be needed in addition to the gastro-enterostomy or the ulcer would not heal or would return if a gastro-enterostomy only was performed. Yet we know that simple gastro-enterostomy answers for the vast majority of cases of these ulcers, no further surgery being necessary, showing that stasis is not an important factor in their etiology.

It has been my experience within the last year to meet people who have been "short-circuited," and who have been benefited thereby for a space of a few months, but who now present the identical symptoms of toxemia they had before they were operated on, although the connection between the ileum and lower sigmoid or rectum is perfectly patent. In two particularly interesting cases a colectomy was done in addition, and still they were toxic. There were three cases, one operated on by Mr. Lane himself, of ileac-implantation wherein the colon not only did not atrophy but was practically a dead space, or a large appendix to the sigmoid, as is the regular appendix a small one to the cecum. Cases were also met with in which cecosigmoidostomy had been performed for toxemia or stasis (not true obstruction) wherein the individuals were even more toxic than they had been before the operation, because of a vicious circle established in the colon.

There is also a question in my mind whether dilatation of the duodenum can always be taken as an indication of intestinal stasis, because while this may be common in cases of bands of the intestine, there are a number of cases in which dilatation of the duodenum exists without bands being present, or even of dilatation of the stomach. I have seen definite cases of dilatation of the duodenum in which the stomach was apparently normal, and I am convinced that by Roentgen-ray method of diagnosis a stomach may be dilated, but when the bismuth meal is given it looks normal in size, while the duodenum, through which the food rushes very quickly, and does not have much peristalsis to speak of, may still remain loose and flaccid.

The ordinary duodenum is 3 inches long, and according to Jordan, when it is 4 or 5 or 6 inches, it is significant of stasis due to kinks distal to it. This is difficult to believe, because in instances people who are not toxic and have no stasis, still have duodenums 4 and 5 inches in length. Jordan, as well as most others, takes the time standard of emptying the stomach and small and large intestine as significant for a diagnosis of surgical cases. I have already alluded to the inadvisability of diagnosing gastric stasis by this means.[1] Of course here I refer to the gastric cases of moderate degree, not those due to definite pyloric obstruction with marked retention. I have noticed normal individuals in whom the function of the stomach and upper small intestine is slow while that below to the hepatic flexure is rapid, and perhaps slow again distal to this point. I have noticed others in whom the transit to the ascending colon in the usual six to eight hours was perfectly normal, and there being no obstruction in the colon, still it was a matter of seventy hours before the bismuth was gone. The stand that Jordan has taken that a sagged transverse colon, by causing a sharp angulation at the splenic flexure, is a cause of stasis is not borne out generally in practice. I have seen persons who have this sharp angulation who are not toxic and who do not have stasis.

The Roentgen-ray method of diagnosing intestinal stasis, while valuable and the best we have, is liable to fallacious conclusions. The misfortune was that when the medical men utilized the Roentgen ray in connection with diagnosis in the abdomen, as well as elsewhere in the body, they did not engage, as their first work, in examining normal individuals. They immediately began with abnormal subjects, and so it is that an unwarranted degree of enthusiasm developed conclusions which only time can modify on the part of all who utilize this means. If Jordan, as well as others, would examine a normal individual every third or fourth time, they would be surprised to find the number of people who have all the Roentgen-ray signs that have been held so important for these diagnoses. Of course, the proportion would not be so great as in ill people, but the number would be so considerable that many definite views held at present would be modified, as must inevitably happen with the proper application of this valuable means of diagnosis. Only a clinician who is engaged in all sides of the work, with the Roentgen ray as well as the laboratory, can appreciate the value and limitations of any one method of abdominal diagnosis. I again reiterate what I have said so many times in the last four years, namely, that we must go slow and be conservative in drawing definite conclusions from Roentgen-ray examination alone. It is the man behind the gun with a Roentgen-ray apparatus who is a far more important factor than energizers, tubes, screens, etc. It is its practical value for diagnosis that counts in the important way, and this is now mostly a matter of personal equation, learned in experience born of failures, both of omission as well as commission. A standardization of this means of diagnosis is absolutely necessary before it can be generally good for the patient and medical men.

The Roentgen-ray method is at present as fallacious in diagnosing intestinal stasis as it is useful when true obstruction exists. I am taking here its consideration from a surgical aspect. Gastric stasis is more often due to other conditions besides kinks than Lane would have us believe. It is surprising in my own Roentgen-ray work how often retention of barium in the stomach for six hours is met with. As my experience multiplies, I am paying less and less attention to this means of diagnosing gastric stasis, so that now, with Mayo, I believe in the test-meal method mostly. Almost every case of abdominal disturbance has this Roentgen-ray finding of gastric

1. Bassler, A.: Some Recent Conclusions On Abdominal Roentgen-Ray Work, THE JOURNAL A. M. A., Dec. 20, 1913, p. 2217.

stagnation, and a diagnosis of gastric stasis or dilatation by means of the Roentgen ray simply should not be made, because however atonic or dilated a stomach might be, provided there is no actual obstruction at the pylorus, it usually contracts on the Roentgen-ray meal and appears to be a much smaller organ than when empty. More than that, I have seen individual cases in which at one time the stomach was dilated, at the next time normal, then dilated (possibly because of some indiscretion in eating), and perhaps normal again after a few days' time.

Mr. Lane does not take into consideration the bacteriology of the intestinal canal, its secretions from the gastric portions down, the motility of the tract that is an ever-changing matter, the habits and age of the individual, diet, condition of the abdominal walls, and many other factors which bring on the condition in a secondary or markedly influencing way. To him and his followers it is only a mechanical matter in cause, diagnosis and treatment. For years and quite generally in its application to the body, drainage has been a real and true standard of surgery. The second and other great one is extirpation of diseased tissue. For the subject on hand, he advances drainage as a cure, and lately extirpation (colectomy following ileac-implantation) because the first was not enough to prevent failures. But the subject is mostly a biologic matter, and to that standard surgery has not advanced as yet. The two time honored methods not being enough to sustain Lane and his followers in all of their contentions, when the patient who has been operated on does not do well they resort to medical measures and prescribe paraffin, belts, diets, marriage, and rest in the country. The employment of these means is fair neither to the advance of the surgery on the subject, nor to the old and better known medical side. The majority of these patients are debilitated, neurotic and low in health. These he puts to bed and purges for the operation, there is the low diet for several days that must follow all laparotomies, then comes the three or more weeks bed rest of the body and building up generally because of no expenditures in physical or nervous energies. Added then is the moral effect of the operation in these more or less psychic sufferers. Every surgeon makes use of these remedial measures for any laparotomy case, but they are especially effective when one deals in large numbers with patients of the kind Lane and his followers are operating on, and due credit for their relief must be given to these really medical means. This Lane does not do. No one has involved the subject more than Lane and his followers themselves. To state "Many forms of medical treatment had been tried in the case but she grew gradually worse, operated on and she is cured," means little. What treatments, and by whom, and for how long a time? This information is not given. The truth is that there are very few medical men who properly diagnose and treat the marked cases. The subject is so little understood generally in medicine, and there is so much for medicine still to find out in the biology of the subject, that such phrases are uttered for personal reasons or because of lack of knowledge. Particularly does this come home irritatingly to us when "cured cases" come under medical attention again after having passed through the route of dangerous surgery and contributed to flattering surgical statistics.

Mr. Lane reports that cancer of the pancreas and stomach is due to intestinal stasis, and yet he fails to account for those cases of cancer at these points that do not have and never have had intestinal stasis. What is still more difficult to understand is his repeated statement that the ileum is normally sterile of bacteria, when the fact is that bacteria are more numerous and active in the lower part of the ileum than in the colon. And further, if he would make bacteriologic observations to prove it, he would find that in the newly-born the duodenum is sterile of bacteria, but as age advances bacteria creep up to it, although the complete intestinal flora is never found here or in the stomach in any individual.

Finally, the following important observation and experience of mine should be recorded. Of several hundred patients who have had intestinal stasis, the kinks Lane has described, and whose symptoms are due to the complexity of forms of these conditions, none has been operated on for functional stasis and all show results as good as Lane has reported. Some have been operated on who had definite obstruction; not the slight form with toxemia and stasis such as the average case displays. These had chronic appendicitis, binding adhesions in some area, gall-bladder pathology, etc. They are well or improved—everyone. Often there were cases of true obstruction from binding pericolonic adhesions, who got well or were much improved whatever the form of operation by which they were short-circuited, providing it was practical. Everyone has agreed that for years surgery was indicated in them, and they always will be cases for which surgery is definitely called for. But when surgery of the intestines is engaged in to do away with food-bacterial poisons, without considering carefully the many factors that influence them, or even the kinds of organisms, then the cases that come back into medical hands several months after the operation as bad as before, prove the fallacy of bands being important and the inaccuracy of many of Lane's contentions. Lane and his followers have confused the terms toxemia and stasis so badly that it is difficult to understand the difference between them. The future will prove that mechanical stasis from a surgical point of view will mean obstruction real and *bona fide*, not just toxemia and moderate degrees of retardation of transit. Many surgeons attribute stasis even to hypertrophy of the Houston valves, mobility of the cecum, redundant sigmoids, Jackson's membrane, etc., but the reasons given are not any more convincing, and my experience and beliefs are that these are also cast in the quicksand of short-sighted surgery. Remember, please, that the bowel may be matted into one mass by chronic peritonitis so that great interference with peristalsis must exist, and still intestinal toxemia may not be present and even intestinal obstruction may be absent. Although it is well known that some of the cases of true intestinal obstruction in a chronic way lead to toxemia, the matter is still not proved when one notes non-toxic cases with the same kinds of obstruction. The coexistence of two phenomena does not always prove that they stand in the relation of cause and effect. The point I would definitely make is this: for toxemia alone, non-mechanical in origin or complication, operation is not indicated; but when distinct retardation to transit exists (and by this I do not mean bands whose influence is negative on simple prone position, but real, true obstruction in any position), operation may be indicated if wise, energetic

and long enough treatment does not satisfy the patient. Lane reports that 5 per cent. of cases seen by him are operated on. My belief is that they should be fewer than this, since only true mechanical reasons warrant surgery being performed. A considerable number of toxemia cases are relieved by operations (those having only kinks), but we do not cure them permanently of the toxemia in by far the largest percentage of instances. Then again, great harm is often done by these operations, seriously interfering with the physiology and biology of digestion, which cases are multiplying. The only true, safe standard in this whole affair is to operate when obstruction from whatever reason exists, and for surgeons to pay no attention to the toxemia or what may be called Lane's type of stasis. In this way the surgeon will be doing what is necessary in the case, the solution of many obscure points will be quickly cleared up on a practical basis, he will make no mistake in the selection of his cases, and his statistics and results will be uniformly good. There is so much variety in these cases that unless he operates on a kink case only when proximal dilatation of the viscera exists, and this patient has been handled carefully and capably for a while without benefit, he will meet with failures. It is best for him to operate only for intestinal obstruction pure and simple, and to pay no attention to stasis, toxemia, Jackson's membrane, Lane's kinks, etc. These may be the factors of cause, but obstruction, whatever the cause, should be his guiding star for activity, and pardon is asked for recapitulating this point.

THEORY OF KELLOGG AND CASE

Included in the work of Lane, these authors add torsions of the cecum and colon and particularly insufficiency of the ileocecal valve, permitting ileal stasis to occur by reflux from the colon. Mention is made of ileums noted that were so dilated that the ileum practically helped in adding a length to the colon. Reports are given of a large number of cases of ileal stasis in which this incompetence of the valve or spasm of the ileocecal sphincteric mechanism, or a combination of the two, was the cause. Substantiation of the theory is given in cases improved by operation on the valve, benefit in its mechanism noted after operation, and the fact that Rieder, Groedel and Diellen have reported instances of this condition.

No one can question that incompetence of the ileocecal valve is a clinical finding in some of these cases, and that apparently it is plausible that it has its significance in connection with the subject, but what must also be remembered is that in most every case of incompetence we are only dealing with a resulting condition, and while operation will help for the time being, the end results will not be as bright as Kellogg and Case have presented them.

Persons are met with in whom the ileocecal valve is not constantly relaxed as Case has stated. Even without treatment of any kind, I have observed four cases in which influx from the colon was noted at one time and not at another. A careful study of this valve has strongly suggested to me that distinctly more knowledge of its function than is at present in our possession is necessary before we can accept Kellogg's and Case's beliefs in connection with this subject. My observations regarding it have been made entirely with the Roentgen-ray method of examination and this being the same as Case's (although perhaps not so extensive or intensive in interest as his) has led me to the belief that it is not of so much significance in each instance. Much depends on the general condition of relaxation of the hollow viscera of the abdomen, for when this is present the incompetence is liable to be present also, and I fail to understand how operation on the valve will afford permanent benefit. A careful study of the function of this valve shows that at times its relaxation, permitting influx from the colon, is a normal phenomenon. In almost every individual in whom the general status of nutrition is very low, enemas sufficient in bulk will reach the ileum, the valve relaxing for the passage of liquids upward from the colon. Following an operation, or for whatever reason, if food by mouth has been withheld for days, influx through the valve is common, it being an effort on the part of nature to obtain better nutrition.

By the clysma method of Roentgen-ray examination of the colon it is most important what bulk of suspension is given. If this is considerable in quantity, influx through the valve is liable to occur. Judging from the picture that Case shows, he fills the colon almost to its capacity. Another thing, and this is very important, in a considerable number of people who have been habitually constipated for years, constant relaxation of this valve is due to the gas pressure more or less resident on the distal side of the cecum. It may be supposed that this pressure would serve to keep the valve closed, and probably it does in the early days of disorder, but eventually the valve is dilated by it, and then it is more or less relaxed constantly (constipation here is the main cause). But here it is often difficult to state definitely, when toxemia is also present, whether it is the constipation or the toxemia that acts mainly. Careful post-mortem work in these cases will far too often show a degeneration in the sympathetic nerves coming from the valve and the centers that preside over them for the general acceptance of the Kellogg and Case theory.

AUTHOR'S THEORY OF THESE DISORDERS

Whatever Adami has said to the contrary, it is nevertheless true that infections of the intestinal contents are the primary factors of greatest importance in connection with toxemia of the alimentary tract. If one would examine bacteriologically a number of stools of these patients and compare them with normal individuals, significance would at once be noted. This is far too large a subject to present in detail here and Herter and Kendall's published works will supply enough to guide one in the beginning. The primary cause of these conditions is mostly a bacterial matter, and it is the food-bacterial products that eventually bring about the status which surgeons are endeavoring to remove by drainage, but which cannot be done successfully enough because the infections commonly continue after the operations.

The course of these cases is about as follows: Early in life the intestinal canal is infected from food and drink. The infecting organism acquires the power of symbiosis so that it becomes more or less permanently established in greater or less abundance. As middle life comes on, the vicissitudes of the individual, his habits and dietetic indiscretions, his artificial existence in the cities and even elsewhere, bring their train of added factors which influence the bacterial development unfavorably to him. The constant resorption of bacterial products affects the tissues nearest

to them, namely the walls of the gut. Errors in the secretions of the pancreas, the intestine (succus entericus), the liver (bile), the stomach, etc., are first to take place, and following this the musculature is weakened by a protoplasmic and nuclearplasmic degeneration in the fibers, both coats being involved. Gradually, a degeneration of the sympathetic fibers takes place, and as this extends, the ganglia are involved, showing a granular degeneration and shrinking of this highly specialized tissue. When this is established completely enough, the hollow viscus dilates and elongates, for the inhibitory power of the sympathetic system is assailed. Then usually, all the hollow viscera of the abdomen show this change, although certain parts like the stomach, small intestine, cecum, colon, sigmoid or rectum may show it to a greater degree. After this, the less immunized tissues of the body (those distant from the abdomen) show its influence on them and we have the picture of an individual we so often see in practice. As local resistance of the gut wall is assailed, the bacteria may gain entrance into the general blood-stream, and, filtering out in remote tissue, proliferate there with the production of local pathologic change.

To me, then, the subject is a medical matter all the way through. Surgical procedures for conditions that come on as complications may be necessary in individual cases, but never the major surgical operations of Lane for simple stasis or toxemia, or his form of abdominal operation for disease in tissues remote from the abdomen, or operations on the ileocecal valve itself.

SUBSCAPULAR EXOSTOSIS WITH ADVENTITIOUS BURSA

CLARENCE A. McWILLIAMS, M.D., NEW YORK

A girl, aged 18, came to my office in the early part of last August complaining of dull, aching pains in the left shoulder, increased by wet weather and by use. The pain seemed to run down irregularly through the deltoid muscle and varied much in intensity, duration and frequency. It was never a completely disabling pain. It had been present for about a year and was getting worse. Twelve years ago, following a fall, the left scapula began to become prominent. For this she wore a brace for a year but without any benefit. The projection of the scapula backward is increasing. Just inside the posterior edge of the left scapula a swelling has appeared, varying in size from time to time, but never larger than a lemon. No redness appears over the swelling, which is very slightly tender. Motions of the shoulder itself are painless and unrestricted. The drawing of the scapula backward and forward is slightly painful and for a year the patient has noticed on attempting this motion a grating or creaking sound.

A few months ago the patient went to one of our best hospitals where they inserted aspirating needles into the swelling on the inside of the scapula in several places, with negative findings. She was sent away without any roentgenograms being taken. This was a mistake, for if it had been done, a diagnosis would at once have been made.

Examination.—When the patient was examined, it was at once seen that the posterior edge of the left scapula was very prominent. There was no depression on its inner side as would be the case were the muscles atrophied from paralysis. Instead there was a fulness at the lower part of the posterior edge of the scapula. The color of the skin in this location was normal. Palpation revealed an indefinite, soft, doughy swelling of about the size of a lemon, the edges of which could not be mapped out. There seemed to be a sense of fluctuation in it. It appeared as though it ran forward beneath the scapula. The feeling was as though a cyst was present beneath the scapula. A roentgenogram was taken, which at once explained the condition. An exostosis (Fig. 1) on the inner side of the lower part of the left scapula was surrounded by an adventitious bursa.

Operation.—Aug. 12, 1914, a transverse incision was made about 1½ inches above the inferior spine of the scapula. It was made transverse so as to afford as little deformity as possible when a low-cut dress was worn. The trapezius fibers were separated in their direction and the rhomboid was divided. Under its surface a thin-walled cyst was found. In the attempt to enucleate this it was ruptured. It

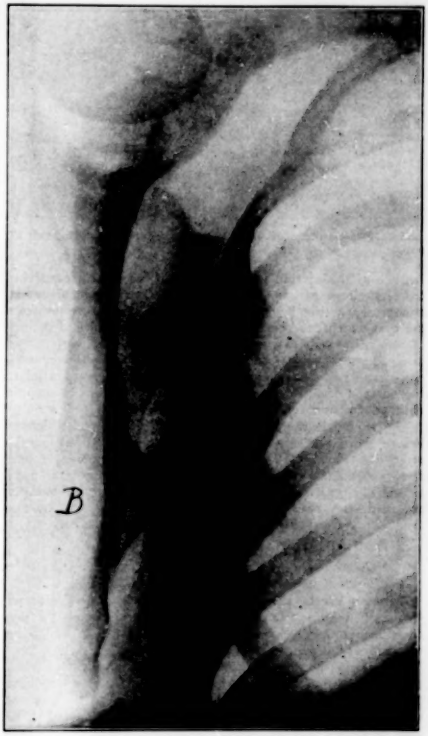


Fig. 1.—Roentgenogram of inner surface of scapula. *A*, *B*, exostosis. *A* is free end of exostosis covered by shadow of rib.

contained serous fluid. The finger inserted came on an exostosis which began about 1 inch from the posterior border and ran obliquely forward and inward. With a chisel it was an easy matter to divide the narrow pedicle at its base. This pedicle was much narrower at its base than at its distal extremity, as shown in Figure 2. The end of the exostosis was irregularly rough. The chest-wall on which the exostosis impinged was very rough and covered with thickened, hard, connective tissue. The bursal wall was dissected out as far as possible, and, in order to obliterate any of the wall which might have been accidentally left, the space was packed with dry, sterile gauze. Separate suture of the muscular layers was made about the gauze.

Pathologic Examination (by Dr. Whipple).—Gross examination: There are two specimens. The first is an oval-shaped piece of bone, measuring 2.05 cm. in one diameter by 2 cm. in the other, and about 1.05 cm. in thickness. Covering it is an irregular patchy area of cartilage which is fairly smooth, with irregular edges. Considerable resistance is encountered on section. The second specimen appears to be the remains of a cyst, covering the exostosis. The cyst-wall is markedly thickened and the inner edges show a considerable amount of infiltrated blood.

Microscopic examination: The sections taken through the exuberant growth of the scapula show that the tissue is made up partly of cartilage and partly of bone. The interesting

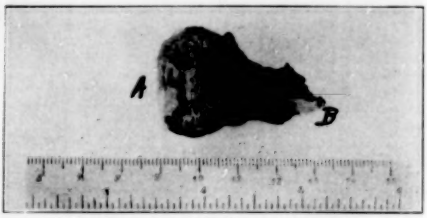


Fig. 2.—Appearance of exostosis after removal. *A*, free end; *B*, pedicle.

feature of the section is the picture of metaplasia occurring from cartilage to bone. Covering the cartilage in places is, apparently, a thin layer of fibrous tissue. The sections from the cyst which covered the exostosis show an unusual picture of adventitious bursa, in which the cyst-wall is made up of fairly dense fibrous tissue and the lining of modified connective-tissue cells, the innermost cells being fairly parallel to the surface of the cyst. Diagnosis: exostosis of the scapula with adventitious bursa.

The wound healed by primary union. Two weeks elapsed before the gauze was loose enough to remove. Two months after the operation the appearance of the shoulder is perfectly normal, the scapula having resumed its normal position. The grating sound has disappeared and all motions are painless. This case illustrates the great debt we owe to the Roentgen ray in assisting us with our diagnoses.

32 East Fifty-Third Street.

Harness Rivets Removed from Nasal Cavity.—While we frequently remove from the nasal cavity foreign bodies which have been retained a short time, yet it is rare to find them retained so long without the patient knowing it. A boy, aged 7, had always been healthy until two years ago when he had an attack of "influenza" lasting several days, at which time there was quite a profuse nasal secretion of a thin, watery nature; the general disorder which had been diagnosed influenza subsided, but the nasal discharge gradually got worse until it became purulent and very foul; nasal douching had little effect; "even the skill of the magnetic healer failed to effect a cure." I first saw the child September 20. He was moderately well nourished, was somewhat anemic and presented the appearance of a child with adenoids. A purulent discharge from the nose was very foul. Careful examination revealed a metallic body in each nasal cavity. These were removed with some difficulty and proved to be quarter-inch harness rivets. They were considerably corroded, showing that they had been in place a long time. A few subsequent treatments cleared up the trouble nicely and the boy is now able to breath through the natural route. This simply emphasizes the necessity of a careful examination of the nasal cavity and all accessory sinuses in every case presenting with a foul nasal discharge.—A. J. Dalton, M.D., St. Joseph, Ill.

New Instruments and Suggestions

NITROUS OXID-OXYGEN ANESTHESIA

A NEW APPARATUS*

Albert H. Miller, M.D., Providence, R. I.

Requirements.—The nitrous oxid-oxygen apparatus used for surgical anesthesia should be simple, portable and readily sterilized.

Simplicity.—Although simple, it must conform to the requirements set by Boothby[1] as follows: (*a*) an absolutely regular flow of each gas at any rate desired, without the necessity of frequent manipulation of valves; (*b*) the flow of gases rendered visible; (*c*) an efficient means of adding ether vapor to any amount; (*d*) a face-piece air-tight and practically self-retaining.

Portability.—Its portability should be such that it may readily be moved from room to room, or taken in an automobile or railway carriage.

Sterilization.—The sterilization of apparatus for administering anesthetics has been generally neglected. It is evidently wrong to continue to use an apparatus which has been contaminated by use in a case of scarlet fever or tuberculosis. Syphilis could undoubtedly be transmitted by an unclean gas inhaler. No apparatus previously described can be readily sterilized and in most, sterilization would be impossible without destroying the instrument.

Apparatus.—The apparatus here described comprises three units: (1) the reducing valves; (2) the controlling valves; (3) the inhaler.

Reducing Valves.—To secure a steady flow of gas and oxygen, reducing valves are essential. These valves reduce the pressure of 900 to 1,500 pounds per square inch as the gases issue from the cylinders, to a readily controlled working pressure of 10 to 20 pounds. Without reducing valves, constant attention is required to maintain even an approximately regular flow of gas. The reducing valves, one for nitrous oxid and one for oxygen, are mounted on double yokes fitted with fiber washers. Two cylinders of gas and two of oxygen, clamped into their yokes, set on the floor,

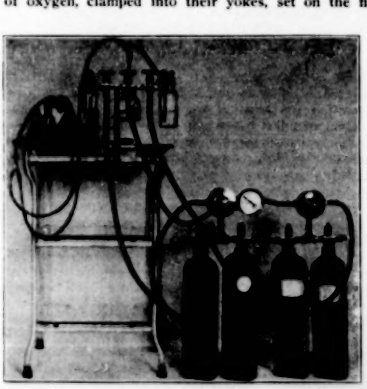


Fig. 1.—Complete apparatus. From left to right: Inhaler, air valve closed. Indicator for oxygen. Oxygen valve. Ether valve and ether vaporizer. Gas valve. Indicator for gas. Oxygen cylinders and reducing valve. Nitrous oxid cylinders and reducing valve.

not requiring any other support. By providing two cylinders of each gas, one is able not only to insure a sufficient supply of the gases for a long operation, but to allow each cylinder to be emptied before a fresh one is opened.

Controlling Valves.—The aluminum frame holding the controlling valves and the indicators is provided with a clamp

* Abstract of a paper read before the Rhode Island Medical Society, Surgical Section, April 8, 1914.

1. Cotton and Boothby: Perfected Apparatus for Administration of Nitrous Oxid-Oxygen-Ether Anesthesia, Surg., Gynec. and Obst., September, 1912.

which attaches this part of the apparatus to a table or chair, again doing away with the need of a stand. On the frame are mounted three valves, two wash bottles and a vaporizer of special construction. Oxygen passes through the valve and wash bottle on the left and nitrous oxid through the valve and wash bottle on the right. The wash bottles, besides moistening the gas, serve as indicators of the rate of flow. The middle valve transmits a stream of nitrous oxid to the vaporizer which provides a constant percentage of ether vapor varied by changing the rate of flow of the gas. In other apparatus, ether has been added by an automatic dropper or by passing the mixture of gases over ether in a jar. In neither of these ways can be obtained the constant, yet instantly variable, percentage of ether vapor which this instrument furnishes.

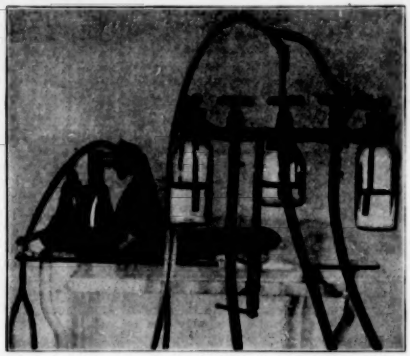


Fig. 2.—Inhaler and valve frame. From left to right: Inhaler, air valve closed. Indicator for oxygen. Oxygen valve. Ether valve and ether vaporizer. Gas valve. Indicator for gas. Wide mouth of bag allows ready sterilization. Aluminum valve frame clamped to table.

Inhaler.—The face mask is of celluloid, which is light in weight, readily sterilized and allows one to see the color of the face and lips or to note the presence of mucus or vomitus. The rubber cushion is inflated, fits any face, and is readily sterilized in boiling water. An air-valve on the inhaler allows the face-piece to be adjusted to the face and the patient to become accustomed to breathing through it before the anesthetic is introduced. When the air-valve is open, the gas is shut off.

The expiratory valve is mounted on the inhaler in plain sight. It is controlled by a spring which is adjustable in tension. There are no concealed valves in any part of the inhaler.

The supply-bag, which also serves for the rebreathing-bag, is mounted on the inhaler. The wide mouth of this bag allows it to be turned inside out and dried after sterilization in boiling water.

Rebreathing.—Only that part of the inspired air which penetrates deep into the lungs is changed during respiration. Without rebreathing, a large part of the gas which is used serves only to fill the inhaler and the upper respiratory passages and is then passed out into the room to be entirely wasted, so far as serving as an anesthetic is concerned. A small proportion of rebreathing serves only to warm the mixture and to prevent the waste of gas and oxygen. A larger proportion of rebreathing stimulates the pulse and respiration and raises the blood-pressure.

In this apparatus, the first part of each expiration passes into the supply-bag. The latter part escapes into the room through the expiratory valve. The proportion of each expiration which enters the supply-bag to be rebreathed is controlled by the rate of flow of the mixture into the inhaler. The proportion of rebreathing can be closely estimated by noting the point of the expiration at which the expiratory valve opens.

If the rebreathing bag were connected with the inhaler by 4 feet of ¾-inch tubing, as is usually done, the expiration would fill only the tube and would never reach the rebreathing-bag. The patient would breathe over and over the gas in the tube and all calculation of the proportion of rebreathing would be destroyed.

Connection of the Units.—The three units of the apparatus are connected together in the order named by rubber tubing. Each unit may be moved independently of the others. The nitrous oxid or nitrous oxid with ether vapor and the oxygen are led to the inhaler by separate tubes. The mixture takes place close to the face-piece. This allows an instantaneous change in the percentage of oxygen. Otherwise the patient would have to inspire all the gas in a 4-foot tube, an 8-gallon bag, a cumbersome heater and an ether-chamber before a change in the oxygen percentage could be appreciated. In some apparatus, it takes more than two minutes to effect a change in the percentage.

Administration.—The supply bag is partly filled with nitrous oxid. The face-piece, with the air-valve open, is adjusted to the patient's face. Bearded faces have the beard smeared with vaselin to secure an air-tight apposition of the face-piece. As soon as the patient is breathing easily through the inhaler, the air-valve is closed and the nitrous oxid controlling valve is opened, allowing a steady stream of gas to enter the supply-bag. The patient breathes pure nitrous oxid until anesthesia is established. A small proportion of oxygen is then added and this is increased until it reaches from 5 to 50 per cent. of the amount of nitrous oxid. A large proportion of oxygen is necessary in some cases of anemia. The depth of anesthesia is controlled by the proportion of oxygen in the mixture, a small amount of oxygen producing deeper anesthesia. At all times a sufficient amount of oxygen to prevent cyanosis must be used.

The proportion of rebreathing is controlled by the rate of flow of the mixture of gases, a more rapid flow corresponding to a smaller proportion of rebreathing. When the controlling valves are closed, rebreathing is complete, or 100 per cent.

When ether is not contra-indicated, a small amount may be used to secure relaxation. The flow of ether vapor is perfectly controlled by the middle controlling valve. When ether is used, the proportion of oxygen to nitrous oxid must be increased.

Result.—Recovery from nitrous oxid-oxygen anesthesia is immediate. The immediate recovery and freedom from after effects leave patient and friends, surgeon and anesthetist in a happy mental condition, in marked contrast to the protracted worry which follows the administration of other anesthetics.

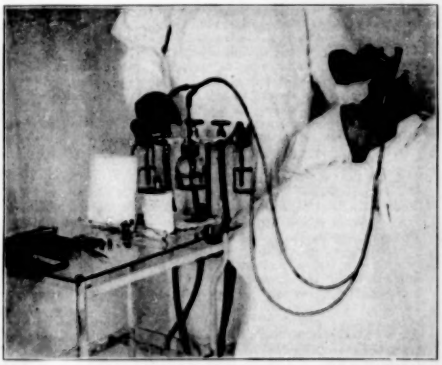


Fig. 3.—Administration. Inhaler applied to face. Air valve open. Hand of administrator opening gas valve. Note gas, ether, and oxygen valves close to administrator's hand.

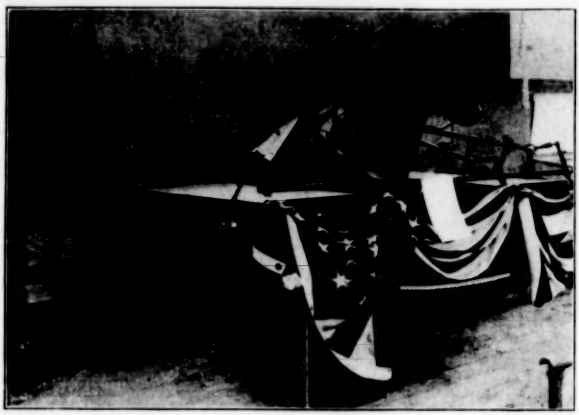
279 Benefit Street.

Cancer as a Preventable Disease.—Cancer may almost be classed as a preventable disease; cure is always possible if the disease is arrested before it begins. Procrastination has killed more patients than the surgeon's knife.—Raymond C. Turck, in *Jour. Florida Med. Assn.*

A SHOCKLESS HORSE-LITTER FOR TRANSPORTATION OF THE WOUNDED

William J. Manning, M.D., Washington, D. C.
Medical Officer, Government Printing Office

The horse-litter shown in the illustration is intended to be utilized in case of war and in territory in which it is not possible to use an ambulance on account of rocky or uneven ground. It was designed and built by me for the Red Cross. Advantage has been taken of the old method of overcoming gravity, utilized largely in country districts, in carrying two pails of water on a hoop, the stretchers in the present instance being conveyed in a similar manner.



Shockless horse-litter, and ready-made splint.

The contrivance can be made very readily by the regimental farrier from equipment carried for other purposes with the army, and may be attached to any pack-saddle. The salient points in connection with the invention are:

1. Relief from shock and jar ordinarily experienced by wounded persons placed on horseback.

2. Economy in construction and in the use of animals for transportation of the wounded and disabled.

DESCRIPTION

A. Heavy iron springs resilient at pressure-weight of 175 pounds placed on each side of the back of animal, and attached to top of framework of saddle by a steel bar.

B. Canvas straps attached to iron triangle, and ends of stretcher handles.

C. Brace-straps running at right angles from outside stirrup or iron leg of each stretcher to its inner distal mate on other side of horse, and secured by a half hitch to cinch under belly of animal to prevent abnormal movement, or swing.

D. Carter's pin that releases or breaks sectional half of frame iron rod to permit easy loading and unloading of stretchers from sides of horse, the stretcher bearers on reaching camp simply placing themselves at the head and foot of litter, and with an upward movement the stretcher with contained body is unhooked from strap hook on triangle (*E*).

At side of model shown is a ready-made splint for utilization when limbs are fractured, or need immobilization, and the carrier is without splints. The wounded soldier's coat is removed, folded and placed beneath his leg, and lateral rolls (*FF*) made to come in contact with outer and inner aspect of leg. The soldiers' bayonet-knife (*G*) and sheath (*G*) are then placed on each side of coat-roll, and his belt or suspenders (*H*) are finally removed and made to serve as laces over side of stretcher, and through slits made in canvas cover of stretcher with a knife; or eyelets can be previously placed in position in the stretchers for utilization in such emergencies.

A NEW PERINEAL BOARD FOR USE IN PERINEAL PROSTATECTOMIES AND GENITO-URINARY AND RECTAL SURGERY

Caryl Potter, M.D., St. Joseph, Mo.

An exaggerated dorsal position to obtain correct exposure of the perineal structures is insisted on by Young, who is the chief exponent of perineal prostatectomy in this country; but it is the one factor which has seemed to me to have been neglected by many men attempting the perineal operation. Usually the elevation of the hips has been effected by means of a sand bag and flexion of the thighs on the trunk produced by the uprights and foot-stirrups of the ordinary operating table.

Such makeshift exposure complicates the operation to such an extent that very few of the structures can be seen, many operators depending on their fingers and not on their eyes to locate the structures in the perineum. In one clinic I saw a prostate removed with the patient in the usual lithotomy position with little or no elevation of the hips, the legs supported by the ordinary uprights and stirrups of the operating table. With poor exposure damage is done to perineal tissues, the rectum is poorly retracted and often torn and the bladder seriously damaged. The popularity of the suprapubic operation with many man is probably due to inability to obtain proper exposure. Without it the perineal operation is often a bunglesome one; but with the exaggerated dorsal position, the Young operation is the ideal one, except in selected cases, provided the Young technic is closely followed.

Young uses the Halsted perineal board which consists of a flat board carrying shoulder pieces and wooden uprights for supporting the legs. A block underneath the board elevates the hips. With the idea of gaining an ideal exposure, comfort for the patient and simplicity of use it seemed to me that a board could be constructed differing materially from the Halsted board.

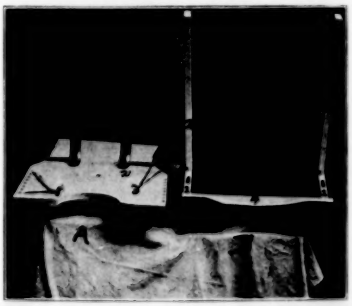


Fig. 1.—*A*, board, which may be placed on any table; 1, holes for receiving pegs on *B*; 2, shoulder supports; 3, curving of board to accommodate the fit of shoulder pieces. *B*, hip support for elevating perineum; 1, holes for receiving leg support; 2, leg support; 3, 4, grooves to fit curves in back and buttocks and to allow instruments, etc., to hang without coming into contact with table.

The device consists of two separate pieces, *A* and *B*, the parts of which are explained in the legend to Figure 1. Board A is 3 feet 8 inches long, the length from the head to the knee-break of an ordinary operating table. The patient is anesthetized. Then the hip support (*B*) is shoved underneath the back and fixed by underlying pegs to holes in the board 1, *A*. As soon as the buttocks are brought to the edge

of the hip support and the legs wrapped around the leg supports the shoulder pieces are locked so that the patient is held in the position desired. The uprights for the legs can be moved backward and forward according to the length of the patient's legs. Flexion at the knees under anesthesia is enough to keep the legs supported by the leg supports. Rarely is it necessary to wrap anything around the legs to hold them. With this device the perineum can be elevated to any position and an exaggerated dorsal position easily obtained.

In the cases in which this device has been used the advantages which have been noted are, (1) convenience of use with

Fig. 2.—Lateral view with leg supports.

any table; (2) ease of manipulation, and (3) perfect exposure.

Proper exposure and strict adherence to the technic as advocated by Young make prostatectomy through the perineal route an ideal operation for enucleating enlarged

Fig. 3.—The hips are elevated, the back is bowed, the perineum is exposed and the patient fixed in this position.

prostates and for attacking malignancy in the prostatic gland. The feasibility of using the same device for other operations around the perineum and rectum is self-evident.

120 South Seventh Street.

Gun-Deafness.—During the Russo-Japanese war, among the 1,791 men who were wounded in the naval engagements there were 116 cases of concussion of the labyrinth and rupture and congestion of the tympanic membrane. The injuries are due to the sudden condensation or rarefaction of the error in the external auditory meatus.—Horne, *Lancet.*

Therapeutics

PREVENTION IS GREATER THAN CURE

(*Continued from page 1393*)

V

PREVENTION OF CONTAGION

Before disease can be prevented its source and its method of transmission must be known. This is too large a subject to treat here, but a brief summary of our present knowledge and of the objects aimed at will be of interest.

To the greater part of the United States, cholera, yellow fever, bubonic plague, some so-called malarial fevers, some dysenteries, and some other diseases, are practically foreign. The cholera bacillus reaches us in ships, and quarantine and governmental control takes this dread disease out of the hands of the individual practitioner. Suffice it to say that stool and urine disinfection, screening against flies, and boiling and using superheated plates and eating utensils, a supply of clean drinking-water and eating with clean hands are the key notes to the prevention of the infection of others. The prevention of dysentery and typhoid fever, both due to known germs, is not dissimilar. Yellow fever infects us by means of contaminated mosquitoes; hence, every case is a menace unless absolutely screened from these insects. The same is true of malarial fever. Bubonic plague is dispersed by the bite of fleas from infected rats. Governmental control of this disease when it entered San Francisco rapidly eradicated it by destroying the infected rats.

Typhus fever is spread by infected body-lice and at times by head-lice. Brill's disease is a form of typhus. The necessity of scrubbing and absolutely cleaning all places of close confinement and all individuals who are confined or about to be confined therein is self-evident.

It has long been known that certain diseases are contagious and transmitted from person to person, but it is only within recent years that the actual germs of disease have been discovered, and still more recently that in some instances the exact method of infection has been discovered. Formerly the contagious element was supposed to be carried in clothing, baggage, money, rags, etc., and to cause the disease when the innocent individual came in contact with such infected materials. In the case of scarlet fever it has until recently been believed that the desquamating skin, the epidermal scales, carried the infection. It has now been pretty thoroughly demonstrated that such is not the fact, that the infection of scarlet fever comes from discharges and secretions of the mucous membranes of the nose and throat and from ears that are suppurating from this disease.

It has been long known that the eruption of measles does not carry the contagion, but that the contagion is transmitted by means of the nose and throat secretions.

Theoretically, dirty money, especially paper currency, handled by all kinds of people and by people suffering from or in close contact with contagious diseases, should transmit disease; but it has not been found to do so. Bank men and treasury department men who handle large amounts of gold and dirty money do not contract disease. This does not excuse the disgusting practice of putting coins in the mouth,

or of wetting the fingers with the tongue in counting bills. Certainly, every individual who handles money should frequently wash his hands, especially before eating, and before handling food for the use of others.

Many kinds of bacteria have been found on stairways, balustrades, car straps and on money, but generally such bacteria have been found to be nonpathogenic. Such negative findings, however, and the lack of demonstration that disease is frequently transmitted by such methods, do not controvert the possibility that occasionally infection may be transmitted from one infected person directly to another by immediate contamination of some article. This possibility only emphasizes the necessity for the more or less strict isolation of infections, and the strict observance by an infected individual of the rules and regulations for the prevention of infection of others which are prescribed for the particular disease that he has.

The greatest factor in the spread of infection in any community or in any associated group is the germ carrier; and the more innocent the individual is of the fact that he is a carrier of pathogenic organisms, the greater the danger to the people who surround him. Therefore, in every epidemic, carriers should be sought for and when discovered should be isolated and treated. Also, a patient recovering from a contagious disease should be proved not to be a carrier before he is dismissed from quarantine or isolation. Another great source of the infection of others is by mild cases of infection in which the individual is not sufficiently ill to remain in the house. Also, some of the children's infections are transmitted in such early stages that the child is not supposed to be ill, or at least is not supposed to have a contagious disease. This is notably true of measles.

Since it has been determined that direct contagion is almost a universal method of transmission of many of the contagious diseases, and that clothing and baggage are rarely, if ever, agents of such transmission, it is evident that some of the measures which have hitherto been employed to diminish the danger of contagion have been of little or no value. Fumigation of rooms, apartments, houses and buildings by various chemicals, is, in most cases, a waste of time, energy and money. It having been determined that most of the contagious diseases are transmitted by secretions from the nose and throat or mucous membranes, or are eliminated with the excretions, cleansing, and perhaps in some instances antiseptic nose and mouth sprays and gargles, and the immediate destruction, either by chemicals or by heat, of all germs that leave the body either by the urine, feces or mucous discharges, and the cleansing with antiseptics of all objects in contact with or in the immediate region of the infected patient, are all sufficient to prevent contagion. All discharges from the noses and throats of patients who are ill from almost any cause should be received into cheesecloth or paper napkins, and these should be immediately placed in a paper bag which should be burned.

Many antiseptic or disinfectant solutions used for the stools and urine are not satisfactory. Bed-pans or other vessels used for receiving the excretions should be cleansed with boiling water or steam. The urine should be received into a vessel which contains a strong antiseptic, as a chlorinated-lime solution 5 per cent., or mercuric chlorid solution 1:500. The urine should then stand in this covered vessel for an hour or more before it is thrown down the closet. The same solution may be used to receive the fecal matters, at least in all diseases in which the feces carry infection; but it is here necessary for the fecal deposits to be broken up, that the germicidal fluid may act on all parts. Chlorinated lime may well be added to the mixture, an equal volume of a 25 per cent. mixture, and the whole tightly closed and allowed to stand for two hours or more before it is permitted to pass into the sewer. While boiling these excretions is the surest and most complete way of killing all germs and spores, in private families this would be a disagreeable and inconvenient method. In hospitals efficient steam or boiling measures for sterilizing all excreta should be installed. All possibly contaminated articles of clothing, bedding, rugs, carpets, etc., should be subjected to heat or steam, if such cannot be actually boiled. All other objects in the room may be well cleansed by washing or scrubbing with formaldehyd or mercuric chlorid solutions. Fumigation of the rooms with sulphur and formaldehyd, if not useless, is not sufficient.

VACCINE PREVENTION AND VACCINE THERAPY

A brief survey of what has already been accomplished shows that small-pox may be prevented, and that typhoid fever and paratyphoid fever may be prevented by vaccines. Streptococcic and staphylococcic infections may be prevented by vaccines, and perhaps pneumonia and erysipelas may soon be aborted, if not prevented, by vaccination.

Vaccines will often aid in the cure of chronic tuberculosis, of gonorrheal complications, of septic infections, of erysipelas, and some cases of rheumatism, and will delay some tumor growths. Vaccine therapy, at times, seems to aid in curing typhoid fever, paratyphoid fever, and pneumonia.

Antiserum cures diphtheria and cerebrospinal fever, and we trust some serum will soon be found for the cure of anterior poliomyelitis. Serum developed from the blood of syphilitics who have received injections of arsenic seems to be therapeutically valuable when introduced into the spinal canal of syphilitics suffering from central nervous-system complications.

It is a well-known pathologic fact that properly to combat a local infection by the blood-serum and in order that the necessary amount of detoxicating antibodies may form, the region about the infection must become congested, that is, the blood-flow, though perhaps decreased in rapidity must be increased in amount. Hence, it has been suggested that before the administration of vaccines in chronic localized infections or suppurations, means should be taken, physically or by drugs, to cause hyperemia of the part or parts affected. For instance, if the infection is in the skin or near the surface of the body, arsenic or thyroid may be given, or body heat, body-baking, hot baths, or hot applications may be used. If the circulation is sluggish in an inflamed mucous membrane in the nose, throat, or bronchial tubes, ammonium chlorid or digitalis might greatly benefit the action of the vaccines.

SMALL-POX

Vaccination as a protection against this serious disease has been long confirmed by history. Germany, the most effectively protected country in the world against small-pox, compels vaccination at the age of

V. 191

1 year, and again at the age of 12. With a population of sixty-five millions in 1913 there were only seven cases of small-pox and no deaths.

Some careful observations on vaccinations against small-pox have been made by Force[1] which it is well to review.

One good method is to cleanse the arm or leg with ether or alcohol, then to remove the epidermis in three small spots, by some such scarifier as a dental scaling chisel, by rotary motion, as recommended by Force. He scarifies each spot about 2 mm. in diameter, then applies a drop of glycerinated virus thinly spread. The amount carried on the broad tip of a sterilized wooden tooth-pick is sufficient for the three spots. When this glycerinated virus has dried he covers it with a layer of gauze held by narrow strips of adhesive plaster, not allowing the adhesive plaster to pass over the treated areas. The patient is told to return in five days, and the areas involved being small, no bad arm should develop. No ointments or antiseptic dressings are allowed. If soreness develops, an alcoholic wet dressing is used, one part of alcohol to two parts of water (or even half and half), and soon the inflammation will subside. On the tenth day antibodies should arrest the growth of the vaccine organisms and immunity should be established.

Cross scarification is said to be prohibited in Germany, as it is said "to favor the growth of anaerobic bacteria," and deep, unsightly scars are the result (Force).

A good take is shown in five days by "a yellowish vesicle surrounded by a narrow red areola." This is vaccinia, or a primary take, while a vaccinoid or secondary take shows in five days "a smaller vesicle surrounded by a wider areola." "When no vesicle develops and the areola appears and subsides early, it is an immediate reaction, first described by Jenner as 'sudden efflorescence.'"

If a revaccination is made in a person with a seven-year-old, or older, scar, he may be vaccinated in two spots with a control spot inoculated with glycerin *only*. "If either of the two vaccinated spots showed an areola of 5 mm. or over (with or without a papule) at the end of twenty-four hours, which areola (or papule) had decreased after seventy-two hours following vaccination (observations after each twenty-four hours) it was considered a *reaction of immunity*. . . . If either of the vaccinated spots showed an areola at the end of twenty-four hours which developed into a small vesicle, maturing on the fifth or sixth day and then rapidly subsiding, the reaction was considered a *vaccinoid*. If there was no change until the third day and then a small areola began to form, the case would be *vaccinia*." A small number of unvaccinated persons with no history of small-pox showed the reaction of immunity in this investigation by Force. Force and his co-workers believe that in these cases of apparent immunity without scar, previous vaccinations had been unsuccessful so far as typical sore and subsequent scar is concerned, but sufficiently successful to cause subsequent immunity. If there is no reaction of any kind, Force thinks that the vaccine used is inert.

The caution is given to observe daily the vaccinated area in all doubtful cases, as immunity reactions are soon over, and revaccination may be done unnecessarily.

The question of the vaccination pustule is worthy of careful consideration. Dyer[2] states that the vaccine vesicle is just as much an indication of vaccinia as the hard chancre is that a patient has syphilis. He also states that the vaccination injury should stop at the vesicle, that the pustule is only a sign of a local infection, and hence should be prevented. Therefore, he advises breaking the vesicle and treating the vesicular lesion antiseptically, and suppuration will thus be prevented. Such a method prevents glandular enlargements, erythemas and other eruptions.

Dyer also urges, as soon as the vaccine vesicle has healed, revaccination to ascertain if the patient is thoroughly protected, and he would revaccinate as long as a vesicle will form, and would not wait a number of years before such a trial. He believes a patient thus treated is positively protected against small-pox.

(To be continued)

1. Force, John Nivison: An Investigation of the Causes of Failure in Cow-Pox Vaccination, THE JOURNAL A. M. A., May 9, 1914, p. 1466.

2. Dyer: Am. Jour. Trop. Dis. and Prev. Med., 1913, 1, 447.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

The following preparation has been accepted for inclusion with the appendix to New and Nonofficial Remedies:

Maltine Co., Brooklyn, N. Y.

Maltine Malt Soup Extract.—Maltine containing potassium carbonate, 1.1 Gm. to each 100 Gm. according to the formula of Dr. Keller, Universitäts-Kinderklinik, Breslau, and alcohol, 3.88 per cent.

The following dosage forms of accepted articles have been accepted for inclusion with New and Nonofficial Remedies:

ACNE VACCINE (See N. N. R., 1914, p. 246).

Greeley Laboratories, Inc., Boston.

Acne Vaccine.—Marketed in packages of six syringes each containing 12 million bacteria.

Lederle Antitoxin Laboratories, New York City (Schieffelin & Co., New York).

Acne Vaccine.—Marketed in packages of four syringes containing respectively 5, 10, 20 and 40 million killed acne bacilli.

BACILLUS COLI VACCINE (See N. N. R., 1914, p. 247).

Greeley Laboratories, Inc., Boston.

Colon Vaccine.—Marketed in packages of six syringes each containing 1,000 million bacteria.

Lederle Antitoxin Laboratories, New York City (Schieffelin & Co., New York).

Colon Vaccine.—Marketed in packages of two vials each containing respectively 50, 100, 200 and 400 million killed bacteria.

BACILLUS PYOCYANEUS VACCINE (See N. N. R., 1914, p. 249).

Greeley Laboratories, Inc., Boston.

Pyocyaneus Vaccine.—Marketed in packages of six syringes each containing 1,000 million bacteria.

H. K. Mulford Co., Philadelphia.

Pyocyaneus-Bacterin.—Marketed in packages of four syringes containing respectively 50, 100, 200 and 400 million killed bacteria.

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SATURDAY, OCTOBER 24, 1914

INFLUENCE OF HEREDITY ON THE OCCURRENCE OF CANCER

As long as our chief source of information concerning cancer biology lay in observations on human material, with such unreliable information concerning ancestry as can be furnished by clinical histories, there was little prospect of learning much concerning the influence of heredity. The data obtainable were confusing and the conclusions contradictory. Perhaps as reliable and well-controlled an investigation as we have on this subject was that of the English statistician, Karl Pearson, who found no evidence whatever that persons with a history of cancer in relatives were predisposed to cancer. With the development of the study of tumors in lower animals, in which pedigree can be accurately controlled, the possibility of ascertaining the influence of heredity became more encouraging, and there are now recorded many observations, mostly fragmentary, although some systematic investigations have been made. Mice, because of their rapid breeding and known tendency to neoplasm formation, offer by far the best material for such studies, but even with these favorable subjects the accumulation of sufficient material for reliable conclusions is difficult. Mice are not hardy animals, and epidemics sweep through even the most carefully kept collections, while at the best, spontaneous tumors have not been common among the laboratory stocks. Hence most of the evidence hitherto presented has been small and incomplete, especially if we exclude the studies of the influence of heredity on susceptibility to inoculated tumors, which is quite a different matter from its influence on their natural, spontaneous occurrence. It is satisfying to mention that much of the best evidence on this subject has come from Americans, notably Leo Loeb and Tyzzer.

Such reports as have appeared almost without exception indicate that heredity does influence the incidence of spontaneous cancer in mice. Recently an extensive and carefully controlled investigation of this subject has been reported by Miss Maud Slye[1] of the Sprague Memorial Institute, who exhibited some of her material at the last session of the American Medical Association in Atlantic City. Utilizing a large stock of mice, bred at first for the purpose of studying certain features of heredity, and in which spontaneous cancers were observed at intervals, Miss Slye undertook a systematic study of the influence of heredity on the occurrence of tumors in these animals, using the same methods which would be used in the testing of any stock Mendelian character, and judging the results by the same criteria that would be used in determining the inheritability of any character, such as coat color, or ear shape, for example. From this very large and thoroughly studied material she has obtained evidence that cancer is a mode of growth which is profoundly influenced by the ancestry of the mice. The power to resist cancer is, in Mendelian terms, a dominant character, and it can be bred into and bred out of different strains of mice as certainly, according to these results, as a coat color can be. By using the recognized principles of breeding it was found possible to produce strains of mice in which the most usual cause of death was cancer in those animals that reached cancer age; equally well, strains were obtained in which practically no cancer ever occurs, and the transition of cancerous strains into non-cancerous, or the reverse, by processes of hybridization, was found quite as feasible as the breeding in and out of coat colors or other "unit characters." In such hybrid strains the cancer element was found to crop out exactly as any other character would; for example, if the cancer strain were introduced in an albino stock the cancer would be found to appear with the albinism in subsequent generations. The conclusion seems warranted that heredity influences cancer by determining the character of reaction which follows non-specific injuries to tissues. This is well shown by a series of 155 cases of spontaneous primary tumors of the lungs, which are common in mice and arise apparently as a sequel of chronic inflammation in the lungs. Of this series all the definitely malignant tumors occurred in mice derived from cancer-bearing strains, while only nine of the entire number were found in non-cancerous strains, and these nine were simple papillary growths not far removed from simple inflammatory proliferations. That is, the universally prevalent lung inflammations are much more likely to lead to tumor formation in mice predisposed by a cancerous ancestry than in mice of cancer-free ancestry. Almost any individual probably can develop a tumor if subjected to just the proper sort and amount of injury at a suitable time, as shown by the experience with Roentgen-ray cancer, but the range of injury which may cause cancer will be profoundly modified by the inherited character of proliferative capacity of the individual. A striking analogy is known by breeders, in the deformities of the feet of

1. Slye, Maud: The Incidence and Inheritability of Spontaneous Tumors in Mice, Ztschr. f. Krebsforsch, 1913, xiii, 500; Jour. Med. Research, 1914, xxx, 281. Slye, Maud; Holmes, Harriet F., and Wells, H. Gideon: The Primary Spontaneous Tumors of the Lungs in Mice, Ibid., 1914, xxx, 417.

chickens which may be produced by improper heating of incubating eggs. Such abnormalities are found especially frequent in particular strains of birds, and may be observed in these strains when eggs from other strains exposed to the same conditions give perfectly normal results. The liability is the thing transmitted, but without appropriate conditions the effect is not produced; that is, heredity modifies the character or degree of the effect produced by a common injury.

These results probably have a more important bearing on the problem of specific tumor etiology than on the influence of ancestry on the occurrence of cancer in man, for it is always to be borne in mind that the mouse cancer strains were produced by carefully planned inbreeding, with conditions which would probably rarely if ever be duplicated in human careers. They seem to fit poorly with the hypothesis of a specific infectious agent, for many and extensive control experiments have failed to yield a single instance of contagion or transmission of cancer from one mouse to another, while the tendency to cancer appears entirely according to the laws of heredity as manifested in other characters of the animals. It is, of course, possible that a specific lack of resistance to a specific cancer parasite may be transmitted by breeding, but, if so, the hypothetic parasite is capable of entering the host in most diverse ways, and of stimulating growths in organs and tissues not directly accessible to infection, as the ovaries, testicles or lymph-glands. To quote Miss Slye on this point:

> All of my observations seem to indicate that cancer is a mode of growth. Let me compare briefly the results of these experiments with the results of one infection somewhat frequent among mice, viz., sarcosporidiosis. Where mice are allowed to stay in the same cage, every mouse at autopsy shows some degree of sarcosporidiosis, whereas members of the family kept elsewhere are no more liable to it than any other strain of mice. But among members of cancer strains, cancer crops out no matter where the mice are kept. A daughter frequently develops cancer before the mother does, and months after they have been separated. A granddaughter will develop cancer who was not born until after the death of the tumorous grandparent.

Furthermore, cancer is a disease of mature and old age, when infections are much less common than early in life, and again, reproduction and nursing may check the rate of growth of cancer while favoring the progress of infectious diseases.

THE ORIGIN OF BENCE-JONES PROTEIN IN THE URINE

The name of Bence-Jones protein has long been associated with an albuminous substance found excreted, in comparative rarity, in the urine and resembling some of the proteoses occurring among the digestion products of protein. It is discovered by the phenomenon of precipitation of the protein when the urine is warmed to about 45 or 55 C. and further complete solution of the precipitate when heated to boiling. The Bence-Jones proteinuria has usually been detected in cases of multiple myeloma, and this symptom has served to differentiate the disease from other bone lesions, as carcinoma, sarcoma and osteomalacia.

The knowledge of the origin of the Bence-Jones protein has remained very incomplete despite the long time that its clinical occurrence has been known. At one period the substance was assumed to be produced in the diseased areas of bone-marrow and subsequently excreted as is any "foreign" protein finding its way parenterally into the body. To this the valid objection has been offered that it is inconceivable that the relatively small areas of diseased bone-marrow should be able to produce the large amounts of Bence-Jones protein found in the urine in some cases. Magnus-Levy,[1] therefore, proposed the theory that this protein is formed in the intestine as the result of as yet unknown abnormal conditions existing in the bowel in certain cases. Folin and Denis[2] have remarked that this hypothesis seems far less plausible to-day than when it was propounded, because of the changed views concerning the character of protein digestion and absorption which now prevail. If Magnus-Levy's contention were correct, then the output of Bence-Jones protein might be expected to show some direct relation to the amount and possibly the kind of protein in the diet. The alternative would put the Bence-Jones proteose into the category of a product of pathologic internal digestion which has nothing to do with the proteolytic processes centered in the gastro-intestinal tract.

The careful study of the metabolism in a case of Bence-Jones proteinuria associated with multiple myeloma of the ribs, at the Massachusetts General Hospital in Boston,[2] is likely to furnish a more convincing clue to the origin of the protein. Folin and Denis have investigated the effects of different levels of protein intake on the proteose excretion. The latter varied from 1.7 to 2.8 gm. in urines containing 5 to 8.5 gm. of total nitrogen, while with a diet richer in protein the proteose output rose to 6.5 gm. and the total nitrogen to 16 gm. A detailed examination of the metabolic end-products failed, however, to disclose any definite or constant relationship between the proteose and the total output of nitrogen. Indeed, the elimination of the Bence-Jones proteose was almost as high during starvation as during the liberal feeding of protein. Aside from an occasional small creatin elimination when the subjective symptoms became severe, the protein metabolism in multiple myeloma appears to be normal so far as the ordinary nitrogenous metabolism products are concerned.

Although it now seems unlikely that the amount of protein taken with the food has any direct influence on the amount of excreted proteose—although the gen-

1. Magnus-Levy, A.: Ztschr. f. physiol. Chem., 1900, xxx, 237.
2. Folin, O., and Denis, W.: Metabolism in Bence-Jones Proteinuria, Jour. Biol. Chem., 1914, xviii, 277.

eral level of the metabolism has been assumed to have some bearing[2]—there is as yet too little evidence to enable one to formulate any tenable theory of "internal" origin of the Bence-Jones protein. To have excluded the food intake as the decisive causal factor is in itself a step in advance.

THE LIVER AND UREA-FORMATION

It will come as a startling surprise to many to learn that the liver has been asked to surrender the traditional privilege of responsibility for the production of urea in the body. Have we not been told by physiologists for a generation or more that this organ is the chief, if not the sole seat of urea-formation? But science is no respecter of theories, although she jealously guards her well-established facts.

One of the extensive inroads into the conventional hypothesis was made by the conclusive demonstrations that the amino-acid products of intestinal digestion are absorbed and travel as such to distant parts of the organism.[4] It is true that the liver forms urea from the ammonia reaching this organ with the portal blood. Ammonia is, however, not a product of the metabolic cleavage of the amino-acids as they start their way into the organism proper, but rather a bacterial product reaching the portal circulation from the putrefying contents of the large intestine and then converted into urea merely as one of the numerous protective devices of the organism.[5] Only a very small fraction of the day's output of urea can be accounted for in this way. As Fiske and Sumner,[6] who have attacked the claim that the liver represents the chief seat of urea-formation, remark, many of the writers on the subject have taken it for granted that urea-formation from amino-acids, in its final steps, is identical with and must, therefore, occur at the same site as that from ammonia. This assumption has no firm foundation on fact; for it cannot be stated that ammonia is an obligatory intermediate product in the cleavage of amino-acids in the mammalian organism.[7]

If we turn to the sort of evidence which has served to assign the leading rôle to the liver, it will be found to rest on experiments in which this organ has been excluded as far as possible from the circulation. Granted that the urinary urea output is depressed under such conditions, it must not be overlooked that after such heroic treatment the liver is not the only organ affected. Renal function is also markedly disturbed, as the attendant oliguria and albuminuria testify.

3. Allard and Weber: Deutsch. med. Wchnschr., 1906, p. 1251. Hopkins and Savori: Jour. Physiol., 1911, xli., 189. Voit, F., and Salvendi: München. med. Wchnschr., 1904, p. 1281.
4. In What Form Are the Protein Digestion Products Absorbed? editorial, THE JOURNAL A. M. A., Dec. 20, 1913, p. 2245.
5. Compare Folin, O., and Denis, W.: Jour. Biol. Chem., 1912, xi, 161.
6. Fiske, C. H., and Sumner, J. B.: The Importance of the Liver in Urea-Formation from Amino-Acids, Jour. Biol. Chem., 1914, xviii, 285.
7. Compare Dakin, H. D.: Jour. Biol. Chem., 1909, vi, 235.

The Boston investigators, Fiske and Sumner,[6] working in the Biochemical Laboratory of the Harvard Medical School, have substituted the analysis of blood and tissues for the urine analysis adopted by their predecessors in dealing with the problem. By injecting amino-acids into the circulation, after the exclusion of all of the important abdominal viscera from connection with it, they have demonstrated that urea can be formed from the protein derivative, even in animals so treated that the participation of the liver is excluded. The accumulation of urea per unit mass of blood and tissues after intravenous administration of amino-acids is reported to be as great (when the trials are suitably carried out) after the liver and other abdominal viscera are withdrawn from the possibility of participation as when they are in their normal relations. The logic of the situation compels the conclusion that the liver is neither essential nor the chief site of urea-formation. This need not, however, controvert the possibility that the process can take place in the liver as well as in other tissues.

If, as these newer studies suggest, direct, unassailable evidence that the liver is the predominant organ for the formation of urea from amino-acids does not exist, students of clinical diagnosis will at once inquire as to the status of some of the tests employed in the so-called functional diagnosis of liver lesions. Obviously this chapter cannot be regarded as a closed one. With the new points of view the amino-acid tests must be investigated anew.

PLUMBISM IN THE SMELTING AND REFINING INDUSTRY

The fourth number of the series on industrial accidents and hygiene has been issued by the Bureau of Labor Statistics. It deals with lead poisoning in the smelting and refining of lead. This important industry employs in twenty plants visited by an investigator about 7,500 men, all of whom are exposed to the fumes or dust of lead. The report considers the dangers inherent in the various metallurgic processes, the precautions available to lessen these dangers, the actual sanitary conditions in the different plants, the extent of lead poisoning during the year 1913 among these 7,500 men, and the medical care furnished them. Of late years there has been a notable improvement in smelting and refining plants, due largely to the concentration of operations in a few large establishments and the consequent abandonment of old, crowded buildings. There is now probably no plant in the United States in which some effort is not made to lessen the danger of lead poisoning as well as to prevent accidents. These efforts, however, are perfunctory in some, and in none are they sufficient. There is not one plant in which no fumes are allowed to escape, not one which is as free from dust as it might be. The result of this neglect is found in the records

of lead poisoning among the men. While Great Britain had a rate of only 1.8 per hundred men employed in a single year in this industry, the rate in this country was something over 22 per hundred.

It was found absolutely impossible to obtain a complete list of the cases of lead poisoning in this industry, as can be done in Great Britain, because of the difficulties offered by physicians. To begin with, no uniformity exists as to what constitutes a reportable case of lead poisoning. One physician following British usage includes cases of anemia with the lead line, another employed by the same company recognizes nothing milder than severe colic, with nausea, constipation and vomiting. There are some physicians who act only as medical attendants and know nothing at all about conditions in the plant, who lecture the men about washing their hands without ever asking if it is possible for them to do so, and who do not know enough about the work to be able to say from which department most of the lead poisoning comes. On the other hand, there are physicians who act as consulting sanitary experts, who go over the plant frequently, keep track of the men, and notify the superintendent when any department is sending in an unusual number of cases.

The investigator takes issue with those physicians who believe that the men themselves are responsible for their own ill health, who maintain that it is lack of personal cleanliness that causes lead poisoning in smelters. It is dust that is the dangerous element, and under dust is included the excessively fine suspension of lead salts that make up the fumes from heated lead and lead ores.

An original observation in this report records experiments in the solubility of the supposedly insoluble galena-lead sulphid ores, made by A. J. Carlson and A. Woelfel of the Physiological Department of the University of Chicago. Contrary to the assertions of Blum and of Rambousek, these observers found the pure sulphid to be soluble in human gastric juice to the extent of 4 per cent., the sulphid ores averaging 2.5 per cent.

A certain seasonal variation was observed in the occurrence of plumbism in this industry. Thirty-three hospital years with a record of 2,847 cases were analyzed, and a curve resulted the two highest points of which were reached in January and June. The first one is explained on the ground that the onset of cold weather increases the dangers of dust and fumes, for the men close windows and remain indoors around the furnaces and eat their lunch inside instead of outside. The second rise is harder to explain. The most probable explanation seems to be that these June cases are the acute cases of poisoning which occur among newly hired employees. It seems that there is a regular exodus from the smelters in the spring to the farms and beet fields, and newly arrived immigrants are taken to fill the vacant places. As the records show that most of the cases of lead poisoning in smelters occur after from one to three months' exposure, men entering in April or May would come down with acute poisoning along in June.

To comment on the extreme importance of practical research of this character is superfluous. Since its establishment, this bureau has often displayed its efficiency in meeting the need which created it. Further developments may be awaited with the confident hope that conditions will continue to improve.

THE RELATION OF DIFFERENT FOODS TO THE FLOW OF THE DIGESTIVE SECRETIONS

One by no means negligible reason for the very wide-spread interest which has been aroused for Pawlow's work on the digestive glands lies in its immediate application to the daily problems of diet. It disclosed unexpected interrelations between various functions of the body; it presented the influence of psychic factors and the nervous system on a physiologic process in a tangible way, and, furthermore, it unfolded the evidence for a very specific rôle of certain foods on secretion in a degree unexpected, even if not entirely unknown.

The original publications of the Russian physiologist contain such a wealth of suggestive observations that the subsequent additions to the literature of this field of inquiry seem comparatively insignificant. In some respects the more recent investigations in the physiology of the alimentary secretions are somewhat corrective in character. Thus it has become more and more apparent that the psychic secretion initiated at the beginning of a meal is at best transitory and unimportant in comparison with the later flow of digestive juices that is referable to the foodstuffs themselves. Without denying or minimizing the value of the early secretion we may nevertheless admit that from the point of view of gastric pathology or digestive therapy it is *par excellence* the regulation or control of the non-psychic provocatives of the activity of the digestive glands which claims foremost attention. Modern research has established the fact that this phase is essentially chemical in origin; hence the suggested import of variations in the composition of the ingested food products.

The comparison of the secretory efficiency of different foods remains unsatisfactory so long as quantitative measurements are not applied to the experimental observations. In Professor Cohnheim's new physiologic laboratory in the Allgemeines Krankenhaus Eppendorf at Hamburg, Wolfsberg[1] has carried out a rather extensive research on the dependence of the volume of the digestive secretions on the character of

1. Wolfsberg, O.: Ueber die Einwirkung einer Reihe von Nahrungsmitteln auf die Sekretion der Verdauungsdrüsen, Ztschr. f. physiol. Chem., 1914, xci, 344.

the diet. He reasoned that if the stimulus which plays the predominant part is a chemical agent, the product of its action — secretion — ought to be roughly proportional to the amount of stimulus, that is, food employed. The same rations were therefore administered to the same animal in successive portions representing multiples of some earlier feeding; for example, bread in quantities of 50, 100 or 200 gm. As a result, two distinct groups of foods could easily be classified. One of these, which includes bread, butter, sugar and potatoes, is characterized by inducing secretion that is quite independent, in amount, of the quantity ingested. To the second group belong milk, meat and bouillon, each of which incites a flow of the secretions directly proportional to the quantity of food material in the intake. Evidently the increased secretion which the foods of this second group bring about is attributable to chemical products which release the secretory hormones of the gastric mucosa.[2] A definite stimulus in these cases is responsible for a quantitatively corresponding response.

Incidentally, it has been observed by Wolfsberg,[1] as well as by others, that a large increase in the volume of secretion does not greatly delay the discharge of the contents from the stomach. Evidently an augmented volume in this organ, acting to increase its distention therein, actually provokes a more rapid contraction and emptying.

Those who apply teleological reasoning to physiologic phenomena might conclude that potatoes and bread, which make less physiologic demand on the digestive organs for their digestion, are physiologically more economical as food. Meat stands at the other extreme of the expenditure of secretory energy per calorie of food value received. Most readers will readily agree that the criterion here suggested is little likely to prove acceptable. At any rate, we have no desire to enter into the controversy to the extent of raising the question of vegetarianism versus animal foods on the basis of this evidence.

2. Compare Edkins, J. S.: Jour. physiol., 1906, xxxiv, 133; Gross, W.: Arch. f. Verdauungskr., 1906, xii, 507, and Editorial, The Induction of Gastric Secretion, The Journal A. M. A., March 21, 1914, p. 934.

Current Comment

THE WAR AND THE ECONOMICS OF PRESCRIBING IN ENGLAND

One effect of the present war in Europe has been to cause the British to urge that medicinal products heretofore purchased from Germany should now be made in England. The campaign for British-made pharmaceuticals is both natural and, so far as the idea can be carried out without violating economic principles, rational. The basic principle behind the movement is that it is the patriotic duty of every inhabitant of the British Isles to do business whenever possible with British firms rather than German firms, and thus not only keep the money "at home," but also prevent it going to their adversaries. Numerous substitutes for German products are being advertised in the different British medical journals. In the current issue of the *Lancet* is a short note from an English physician who writes to the editor as follows:

"I am pleased to see the advertisement of 'Helicon' in your issue of last week. *I find that helicon and aspirin are identically the same.* [*Italics ours.*—Ed.]

"Now is the time. Prescribe helicon and put money into English pockets and not aspirin and money in German pockets. This is to be a war of endurance, and the length of the purse will settle it."

Proprietary prescribing is evidently a "state of mind." If it were not, the intelligent physician would urge that instead of prescribing a definite chemical substance under a fancy name — whether German or British — the economical and rational thing to do would be to prescribe it under its own name. It is doubtless true that whether British physicians prescribe acetyl-salicylic acid under the name of "Aspirin" or "Helicon," the British public will have to pay a fancy price for a staple product. If the conservation of the financial resources of the people is the thing to be sought, why in the name of common sense make the public pay a high price for acetyl-salicylic acid for no other purpose than that of perpetuating an unscientific habit — that of prescribing things under a proprietary rather than a common name? This habit, fortunately on the decrease in this country, seems to be increasing in the British Isles. Turning to the same issue of the *Lancet* that contains the letter quoted above, the question is driven home even more strongly. Our British contemporary carries a half-page advertisement of that hoary and impudent fraud, Antikamnia. Is there any good reason why the British people should be made to pay a fancy price for their acetanilid or acetphenetidin tablets — and Heaven knows which they get at present under the name Antikamnia—simply for the sake of putting money into the pocket of its St. Louis manufacturer? Another half page is given over to an advertisement of "Hayden's Viburnum Compound." Is there any economic reason for prescribing this unscientific and widely puffed preparation and making the British public pay a fancy price for it, the proceeds of which go finally into the pockets of a Massachusetts concern? Still another half page is sold by the *Lancet* to the exploiters of "Hagee's Cordial of the Extract of Cod Liver Compound," another St. Louis nostrum, which cannot be defended on the score of either economy or scientific prescribing. A full page is sold to "Glyco-Thymoline," a New York product. Can the British profession defend the prescribing of this simple mixture sold at a fancy price when exactly the same results can be obtained from pharmaceuticals to be found in the British Pharmacopeia? As a matter of fact, the prescribing of proprietary remedies by British physicians has always been against the interest of the British public as well as opposed to the practice of scientific medicine. Under present conditions it is more than this; it is an economic wrong. There may possibly be a few

proprietary medicines that have no exact counterpart in the British Pharmacopeia or the Codex, but their number is so small as to be negligible. Certain it is, the vast majority of proprietary remedies at present sold in Great Britain are unscientific, high-priced mixtures whose use benefits none but a few manufacturers and whose sale constitutes an unnecessary drain on the resources of the British public. When a British physician prescribes a proprietary made in the British Isles he imposes a burden on the many for the benefit of a few; when he prescribes a proprietary made in some other country he not only puts an unnecessary tax on the British public, but also sends money out of the country in doing it. From the point of view both of scientific medicine and of public policy, there is no better time than the present for British physicians to discard the majority of proprietary remedies.

AN IMPORTANT EPOCH IN MEDICAL EDUCATION

The opening of the session of 1914-1915 in the medical schools marks an important epoch in medical education in this country. It is noteworthy that this fall thirty-seven medical colleges, for the first time, are requiring for admission one year of collegiate work in addition to a four-year high school education. This standard, which in 1904 was considered as "ideal," has now become the essential minimum and has been adopted by eighty-four of the 101 medical colleges, and by twenty-two of the forty-nine state licensing boards. In addition to this, thirty-four of these colleges and seven of the state licensing boards have gone further and adopted the requirement of two years of collegiate work as the minimum preliminary standard. This is indeed a marvelous improvement over conditions which existed only a brief ten years ago; when of the 166 medical colleges only four were requiring any collegiate work for admission, and comparatively few were requiring even a completed four-year high school education. Entrance requirements, meanwhile, may be taken as an index of the other remarkable improvements made in medical education during the last decade. The general adoption of the higher entrance standard has resulted in a remarkably increased attendance in colleges of arts and sciences. In fact, some of these institutions which formerly had small enrolments now find their classes so increased that provision for a larger equipment and additional teachers has been necessary. Again, the general adoption of this higher standard makes the entrance requirements of all medical colleges more uniform. As a consequence, students are exercising a larger freedom in selecting the institution they are to attend and will usually select the better one. This is shown to be a fact, since colleges which have for several years had small enrolments on account of their higher entrance standards this year report marked increases in the numbers admitted. More important, however, is the fact that the great majority of students from now on will be better qualified to enter on the study of medicine, and to master the greater complexities of the modern medical curriculum. Finally, in the success of the campaign for higher entrance standards the public has the assurance that the medical schools hereafter will turn out a larger proportion of thoroughly qualified physicians.

WHY NOT AN EXCHANGE OF MEDICAL TEACHERS?

For several years some of our universities have been exchanging professors for certain periods with universities abroad. Students in such universities have the opportunity not only of meeting and getting acquainted with foreign university teachers, but also of obtaining instruction under the methods and with the interpretations used abroad. Not only the student but the university also is undoubtedly benefited by this interchange of teachers. Would it not be worth while for medical schools to consider the adoption of a similar procedure? Medical teachers and investigators from Europe are frequent visitors in this country. Since 1896, when the Lane Medical Lectures were founded by Dr. Levi Cooper Lane at the Cooper Medical College, San Francisco, now the School of Medicine of Leland Stanford University, most of the biennial lectures provided for have been given by prominent medical teachers from abroad. In 1902, the Christian A. Herter Foundation was established at the Medical Department of Johns Hopkins University "for the formation of a memorial lectureship designed to promote a more intimate knowledge of the researches of foreign investigators in the realm of medical science." Since this foundation was established a course of lectures has been given each year by some prominent foreign investigator or clinician. As announced last week,[1] the lectures this year were given by Dr. Thomas Lewis of London, the editor of *Heart* and the leader in the newer methods of studying cardiac function. Dr. Lewis is also to spend a week at the Medical School of Harvard University, where he will be placed temporarily in charge of certain wards at the Peter Bent Brigham Hospital. Considering the extent, therefore, to which prominent medical men from abroad are already lecturing in this country, it would not seem difficult to arrange for an enlargement of the courses now being given, into an exchange of medical teachers. It could not be said that the benefits would be one-sided — no such assertion has ever been made in the exchange of teachers of the colleges of arts and sciences. On the contrary, as shown in a comment above, medical colleges in the United States have been greatly improved in the last ten years and there is now much that European medicine might learn from American teachers. Chiefly, however, the arrangement would result in closer relationships between the medical teachers of this and other countries that would undoubtedly be mutually beneficial. Considering what is now going on in Europe, these suggestions may seem inopportune; the principle is correct, nevertheless. Meanwhile, even more benefit would result from a similar exchange system between the high grade medical schools at home; and such an exchange could be easily arranged.

1. General News, THE JOURNAL A. M. A., Oct. 17, 1914, p. 1404.

This would bring teachers of the different medical schools into closer sympathy, and improved methods of teaching would be more widely adopted and faulty methods corrected. Incidentally, but perhaps of most importance, the students of all medical schools participating in such an exchange would obtain a more uniformly thorough training in the latest and most improved methods of investigation, of diagnosis and of treatment.

CHILD MORTALITY FROM BURNS

Some months ago[1] we commented on the dangers of fire from the use of certain materials for children's clothing, especially mentioning a kind of light cotton material known as flannelet. The condemnation has been about equally shared by this and other similarly combustible dress materials and the practice of warming apartments with open unprotected grates, which are apparently more depended on for heating in Great Britain than in our severer winter climate. The subject has not at any time aroused the attention in this country that it has in Great Britain; nevertheless there cannot be very many physicians who have not had to treat serious burns, generally in children, that may have been caused in some such ways. A recent report by the coroner's physician of Brooklyn suggests that the prevention of such accidents deserves more consideration from the medical profession here. He gives as the record for sixteen days in that borough, September 4-20, eighteen fatalities from burns in children, beside three of adults. The average age of the children killed by fire is given by him as between 2 and 5 years. How many not fatal but still serious burns of children occurred can only be conjectured.

A "CURE-ALL" APHRODISIAC

In an article on modern Korea, R. Malcolm Keir[2] of the Department of Geography and Industry at the University of Pennsylvania calls attention to the important source of income to Korea which accrues from ginseng. In spite of the fact that the peculiar man-shaped root has no medicinal value so far as Western science can determine, though it acts with wonderful efficacy on the minds of the Chinese, the Koreans for decades paid their tribute to China in ginseng. Some of the wild ginseng roots which grow in the Northern Mountains and resemble human beings more closely than the cultivated roots, and which take on a curiously human pink color after being steamed in a special manner, sell for $150 a pound. The finding of one root in three years gives enough return to supply the entire livelihood for the whole of that period to the family of the finder. This speculative element in the industry has its special attraction for many Orientals whose gambling instincts are well developed. The cultivated variety of the plant is valued at about two dollars a pound, but roots selected for their particular human resemblance have a much enhanced price. Although barely 275 acres are planted in ginseng, yet the annual value of the crop is $130,000. For the Chinese, ginseng is a universal panacea, a "cure" literally for all the ills that flesh is heir to. It has a special reputation as an aphrodisiac, and probably nothing can better help the physician to judge critically of the value of aphrodisiacs generally than the fact that the Chinese are quite sure of its marvelous efficacy for amorous excitation, though no evidence can be obtained in the West of its power to produce any such effect. The Chinese are shrewd, but are quite as amenable as other people to the influence of the mind over the body while they think that the remedies they employ are rather affecting their bodies directly and their minds only by the betterment in their physical well being. Most of us have thought of the ginseng legend as a thing of the past, as it seemed destined to become in our student days, but here it is a prominent factor still in a nation's industry and geography. And who shall say that the rest of the world is a whit better than the Chinese when it comes to paying liberally for an absurd "cure-all" whose chief alleged virtue is to give manly vigor back to senile or presenile neurasthenics?

OUR FOREIGN EXCHANGES

At the first onset of the war there seemed likely to develop a sudden dearth of foreign medical literature, and our translators and abstractors were wondering if they should not prepare for an enforced vacation. But aside from those of France, our principal exchanges are still coming. The French publications, however, appeared to have been suspended from the start, none having been received until October 20, when the issues of the *Presse Médicale* from August 12 to September 23 were delivered in one bundle. This journal is appearing now as a four-page bulletin of medico-military information. Those of Belgium continued for a time, but they have now ceased to appear. The journals which we are receiving are, in every instance, greatly reduced in size. The German periodicals seem to be considerably delayed in arriving: The *Berliner klinische Wochenschrift* for September 28, the *Zentralblatt für Gynäkologie* for September 26, the *Deutsche medizinische Wochenschrift* for September 24, were received October 19; the *Münchener medizinische Wochenschrift* for September 15—the last one received—came October 10; and the last number of the *Wiener klinische Wochenschrift*—that for August 20—was received September 15. On the other hand, there seems to be increased speed in the delivery of English publications, all of which are continuing: e. g., on October 12 we received the London *Lancet* and the *British Medical Journal* of October 3; and on October 19, the same journals for October 10. Heretofore these journals were not delivered for ten days after the date of issue. The explanation, we believe, is the fact that the fast Atlantic steamers now sail to Halifax and Quebec, rather than to New York, which makes a much shorter ocean trip. Our Scandinavian exchanges and one Italian the Milan *Gazzetta*, have been received

1. Deaths of Children by Burning, Current Comment, THE JOURNAL A. M. A., Jan. 3, 1914, p. 46.
2. Keir, R. Malcolm: Bull. Am. Geograph. Soc., 1914, xlvi, No. 10.

regularly, with only slight delays, but the *Policlinico* of Rome and the *Riforma* of Naples have not been seen since the war began, and no Russian mail of any kind has come through. Our Paris and Berlin letters have not appeared as regularly as in the past. In the case of the former this may be attributed to the fact that our correspondent at first seemed to be at the front, but later resumed his correspondence; and our German correspondent has written with such hot invective and burning satire that THE JOURNAL could not have published the first three letters and still maintained absolute neutrality. Our Paris correspondent has also allowed himself to deviate from medical matters, and of course we have had to eliminate such statements, making his letters shorter than usual. The same also applies, but to much less extent, to our London correspondent. The matter eliminated, however, was absolutely non-medical. Our Vienna and Budapest correspondents seem to have been lost from the very start of the war.

CHOLERA AND THE WAR

Epidemics of cholera are reported to be threatening the various armies, especially those engaged on the Russo-Austrian frontier. But it will be remembered that even in the normal state of affairs cases of Asiatic cholera in this neighborhood are not unusual. Cholera is a disease whose spread is dependent largely on infected drinking water and carriers, apparently healthy. So far as is known infection occurs only through the alimentary tract; this is to say, the germ must be swallowed. It seems probable that in addition to water as a source of infection, food when exposed may become contaminated with the organism—as for instance through the agency of flies. The germ is passed with the feces, and unless there are efficient sanitary precautions water-supplies are likely to become infected. Therefore in the passage of large bodies of troops, when sanitation cannot be perfect, an outbreak of this disease may be expected. The cholera organism, the comma bacillus, is especially sensitive to drying and there seems to be a doubt whether or not it is able to multiply outside of the body in impure water. In the recent Balkan war cholera was reported in many places and many cases occurred, but the disease never became epidemic. With the assistance of the highly efficient sanitary services of modern armies, wide-spread epidemics of such diseases may be prevented. Soldiers are observed carefully and in efficient camps a soldier who has frequent stools is reported to medical officers, isolated and his symptoms watched. It has been suggested that the coming of winter may lend aid in preventing the spread of cholera. However, the increased moisture and seepage of surface water carrying contaminating material as well as the closer contact of human beings engendered by the winter season make infection still more likely. As an aid to protection, active immunization of men with the Haffkine vaccine may be practiced. Possibly conditions in this war will be the means of determining still more exactly the status of this protective measure.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Personal.—Dr. Harry E. Kirschner, medical director of the Pottenger Sanatorium, Monrovia, has resigned and opened an office in Monrovia.——Dr. Donald P. Webster, San Francisco, has returned from Alaska.——Dr. Lorne B. Graham, Pacific Grove, has started for Europe.

Municipal Hospital Ready.—After more than five years of steady construction work, the new City and County Hospital, San Francisco, erected at a cost of $2,000,000 is now completed and will be turned over to the city, November 1. The hospital is constructed of vitrified brick and really consists of eight separate buildings connected by a large corridor, from which the ward buildings branch out at right angles. At one end of the corridor is the Receiving Building and at the other end, the Nurses' Home and Training School. In the center of the building is the Administration building with two ward buildings on either side.

Faculty Appointments.—Dr. George H. Whipple, a member of the faculty of the Johns Hopkins Medical School, has been appointed director of the George Williams Hooper Memorial Foundation for Medical Research in the University of California.——Dr. Carl Friedrich Meyer and Ernest Linwood Walker, have been appointed associate professors of tropical medicine, and Dr. Charles W. Hooper, fellow in research medicine in the same foundation. The headquarters of the foundation are to be in special laboratories in the Medical School Building of the University of California, San Francisco.——Dr. Wilbur A. Sawyer, Berkeley, director of the California State Hygienic Laboratory, has been appointed lecturer on hygiene and preventive medicine in the University of California Medical School.

CONNECTICUT

Personal.—Dr. Albert C. Thomas, New Haven, has been confirmed by the executive council as superintendent of the Foxboro, Mass., State Hospital.

State Society Semi-Annual Meeting.—The Connecticut Medical Society at its semi-annual meeting, October 1, was the guest of the New London County Medical Society. Luncheon was served at the Norwich State Hospital and in the afternoon Drs. Rush W. Kimball and Patrick J. Cassidy, Norwich, reported their experiences in Europe, and after a literary program, a clinic was held on the common types of mental diseases.

Small-Pox Costs One Town Over $1,000.—The annual reports for the town of Montville show that the town paid $1,077.75 for the luxury of a small-pox outbreak during October, 1913, which also caused great inconvenience to the town and which, according to the health officer, Dr. Morton E. Fox, Uncasville, was largely due to failure to report the original cases. One member of the affected families escaped, having been vaccinated.

DELAWARE

State Society Election.—The one hundred and twenty-fifth annual meeting of the Delaware State Medical Society was held in Wilmington, October 12 and 13. Dr. George Frank Jones, Georgetown, presided in the absence of the president, Dr. William P. Orr, Jr., Lewes. The following officers were elected: president, Dr. Henry W. Briggs, Wilmington; vice-presidents, Drs. James T. Massey, Viola; Roland G. Paynter, Georgetown; secretary, Dr. George W. K. Forrest, Wilmington (reelected); treasurer, Samuel Mumford, Wilmington (reelected), and delegate to the American Medical Association, Dr. William Marshall, Jr., Milford.

GEORGIA

Medical Research Club Formed.—The Medical Research Club of Atlanta has been organized with the following charter membership: Drs. Asa G. DeLoach, Elmore C. Thrash, Archibald B. Elkin, James D. Manget, Allen H. Bunce, Thomas R. Beech, Herbert L. Reynolds, Worth E. Yankey and Hansell Grenshaw.

Personal.—Dr. John Peebles Proctor, Athens, has returned from abroad.——Dr. Clarence M. Paine, Atlanta, has been reappointed a member of the State Board of Medical Examiners, representing the homeopathic school.

IDAHO

Personal.—Dr. Frederick W. Didier has been appointed examining surgeon for the United States Pension Office with headquarters at Priest River.——Dr. Charles B. Shirley was recently presented with a silver loving cup by a number of his women patients at Weiser.

New State Society Officers.—The twenty-second annual meeting of the Idaho State Medical Association was held at the Owyhee Hotel, Boise, October 8 and 9 under the presidency of Dr. Frank W. Mitchell, Blackfoot, who delivered an address on "Medical Jurisprudence." Lewiston was selected as the place of meeting for next year, when the Society will meet in connection with the state associations of Oregon and Washington. The following officers were elected: president, Dr. John N. Alley, Lapwai; vice-president, Dr. Fern M. Cole, Caldwell; secretary-treasurer, Dr. Edward E. Maxey, Boise (reelected); Dr. Lucien P. McCalla, Boise, delegate to the American Medical Association, and Dr. Maurice H. Tallman, Boise, alternate.

ILLINOIS

Addition to Beverly Farm.—Dr. William H. C. Smith, superintendent of Beverly Farm, private home and school for nervous and backward children, Godfrey, has recently added twenty rooms to his institution, which is now able to accommodate seventy-five children.

Personal.—Dr. John T. Montgomery of Charleston has received the endorsement of the Republican party as candidate for the position of trustee of the state university. As the university has a medical department it seems most important that there should be a medical man on the board.

Hospital Notes.—Contracts have been awarded for the construction of the Lutheran Hospital, Moline. The institution when completed will cost about $40,000, and work is to be started on the building by April 1, 1915.——The Contagious Disease Hospital, given at a cost of nearly $100,000 to the Evanston Hospital by James A. Patten, was opened for inspection October 24 and 25. The building is four stories in height, 121 by 42 feet; of brick, fireproof and will accommodate fifty patients.

Health Poster Competition.—The City Club of Chicago has started a health poster competition and will award three prizes of $50, $30 and $20, respectively, for the three best designs submitted. Each drawing must be 23 by 29 inches, with a 2-inch margin and executed in two colors for zinc etching reproduction. The drawings are to be delivered not later than October 30 to Charles Yeomans, secretary, Committee on Public Health, City Club, 315 Plymouth Court, from whom full details of the contest may be obtained.

Chicago

Personal.—Dr. John Steele Sweeney and Dr. Alfred N. Moore have returned from abroad.——Dr. Ernest A. Loewinger is doing volunteer work and is one of the surgeons in the Imperial and Royal Military Hospital, Budapest.——Dr. Robert T. Gillmore has been elected president of the Chicago Gynecological Society.——Dr. and Mrs. Harry B. Bailey, Chicago, have returned from Europe.

War Surgery.—A meeting of the Chicago Medical Society, October 21, was devoted to army surgery. The speakers and their subjects were: Colonel William Stephenson, M. C., U. S. A., chief surgeon of the Central Division, on "War from the Standpoint of the Military Surgeon"; Lieutenant Colonel Jacob Frank, surgeon general of Illinois, on "Perforating Wounds of the Abdomen"; Colonel Patrick J. H. Farrell, formerly commander-in-chief of the order of the Army of the Philippines, on "The Military Surgeon on the Firing Line."

INDIANA

No Typhoid in Columbus.—Since the new filtration plant was established in Columbus a year ago there has not been a single case of typhoid fever where city water was used; nor has there been a single case of contagious disease in the quarter ended September 30.

Personal.—Dr. Charles S. Goar, Indianapolis, who was injured by being struck by a train a year ago, has been awarded $8,000 damages.——Physicians of Fort Wayne gave a banquet, October 2, in honor of Dr. Allen Hamilton who has just returned from abroad.

Arrangements Made for District Nurses.—The city board of health, Indianapolis, has organized a new department of nursing which will be in connection with the medical inspection of the public schools. Student nurses from the hospitals of the city will be employed to follow up those cases of children excluded from public schools on account of disease.

NEW MEXICO

State Tuberculosis Foes Meet.—The annual meeting of the New Mexico Society for the Study and Prevention of Tuberculosis was held in Albuquerque, October 7, and the following officers were elected: president, Dr. Abraham G. Shortle, Albuquerque (reelected); vice-presidents, Drs. Frank E. Mera, Santa Fe; James W. Laws, Lincoln; and William T. Brown, Watrous; secretary, Dr. LeRoy S. Peters, Albuquerque; treasurer, Dr. Robert E. McBride, Las Cruces.

State Association Meeting.—The thirty-third annual meeting of the New Mexico Medical Society was held in Albuquerque, October 5 to 7, under the presidency of Dr. Henry B. Kauffman, Albuquerque, who delivered an address on "Eugenics." Las Vegas was selected as the meeting place for 1915. The following officers were elected: president, Dr. William T. Joyner, Roswell; vice-president, Dr. Evelyn F. Frisbie, Albuquerque; Dr. Clifford S. Losey, East Las Vegas and Dr. Charles A. Frank, Albuquerque; secretary, Dr. Robert E. McBride, Las Cruces (reelected); treasurer, Dr. Frank E. Tull, Albuquerque; delegate to the American Medical Association, Dr. W. R. Tipton, East Las Vegas; alternate, Dr. Samuel D. Swope, Deming.

NEW YORK

Clubhouse Nearly Ready.—The Rochester Medical Society expects to move into its new clubhouse, recently purchased for $35,000, about November 1.

Personal.—Dr. Robert Reid, Schenectady, has resigned to accept a position on the house staff of the Albany City Hospital.——Dr. Raymond Sanderson, Canandaigua, bacteriologist of Ontario County, has been appointed to a similar position for Ulster County, with headquarters at Kingston, and has been succeeded by Dr. Wm. A. Bing, Albany.

New York City

Doctors Visit Quarantine.—At the opening of the new quarantine laboratory, recently, five hundred physicians were the guests of Dr. Joseph H. O'Connell. The laboratory is located on Staten Island and is perfect in its equipment for bacteriological and research work.

Personal.—Dr. Mary M. Crawford, Brooklyn, sailed for Europe, October 17.——Dr. Ebba A. Dederer has been appointed physician for the Brooklyn Society for the Prevention of Cruelty to Children.——Dr. and Mrs. William Morris Butler, Brooklyn, have returned from the orient.

Millions for Health.—The health commissioner, Dr. Sigismund S. Goldwater, has submitted to the budget committee of the estimate board, his estimate of the amount required for the conduct of his department during the ensuing year. He will require $3,621,738.58, which is $87,498.08 more than the allowance for last year.

St. Luke's Day Celebrated.—A service was held in Calvary Church on the evening of October 18, St. Luke's Day, the "Feast of the Beloved Physician," at which time addresses were made by Dr. Howard A. Kelly of Baltimore and Dr. William H. Jeffries, St. Luke's Hospital, Shanghai. The physicians and nurses of the city were especially invited.

Columbia Faculty Changes.—Assistant professor, A. M. Muller of the department of anatomy, has resigned to accept the professorship of anatomy in the College of Physicians and Surgeons, New York City.——Dr. James W. Jobling has resigned as assistant professor of pathology to accept the professorship of pathology in the Vanderbilt University, Nashville, Tenn.——Dr. Cornelius Copley has been appointed professor of laryngology to succeed the late Dr. William K. Simpson.——Dr. Alwin M. Pappenheimer has been appointed assistant professor of pathology, vice Dr. James W. Jobling, resigned.——Dr. Homer F. Swift has been appointed associate professor of the practice of medicine, succeeding Dr. Warfield T. Longcope, promoted.

NORTH CAROLINA

Fire at Sanatorium.—On October 1, fire partially destroyed the Winyah Sanatorium, Asheville. The patients were

removed without casualty and the burned building will be at once replaced with a new and larger structure.

Obstructor of Vaccinator Imprisoned.—Peter Jeffries, a colored man of Raleigh, was convicted and sentenced to thirty days on the county chain gang for obstructing Dr. Albert S. Root, city physician, who was vaccinating the sister of the prisoner, a pupil in the city schools.

Personal.—Dr. Stephen J. Hawes, Dover, has returned after several months spent in New York City and Rochester, Minn., and has moved to Lumberton.——Dr. Lewis B. McBrayer, superintendent of the State Sanatorium for Tuberculosis, has accepted the office of executive secretary of the State Red Cross Seal committee.

State Board of Health Meeting.—The North Carolina State Board of Health, on October 6, held its first meeting in the new offices of the Board, on the fourth floor of the Supreme Court Building, Raleigh. It was decided to ask the legislature for funds for the erection of an additional building at Sanatorium to provide more room for tuberculosis patients.

OHIO

Personal.—Dr. Wilbert A. Hobbs, East Liverpool, is seriously ill with septicemia in St. Vincent's Hospital, Cleveland.——Dr. William R. Kelly, McConnelsville, the oldest practitioner in Morgan County, was made a life honorary member of the Morgan County Medical Society at its meeting October 2.——Dr. Rufus C. Pennywitt, Dayton, is ill at his home with appendicitis.——Dr. Charles Betts, Toledo, has returned from Europe.

Health Officers Confer.—Health officers from the southern part of the state met with the State Board of Health at Cincinnati October 22 and 23. This conference is provided for by the laws of Ohio, and all local health organizations are required to send a representative. Various subjects relating to rural sanitation were discussed, but especial interest attached to the conference on account of the proposed change in the health laws. The proposed bill providing for whole-time district health officers was discussed before the conference by the secretary and executive officer, Dr. Eugene F. McCampbell, Columbus. Two illustrated lectures were given on the evening of October 23, one on tuberculosis and occupational diseases, and the other on communicable diseases and their control by local health officers.

Milk-Borne Typhoid.—Two outbreaks of typhoid fever, one clearly traceable to the milk-supply and the other suspected of being transmitted by milk, have occurred recently in Ohio. The first occurred in Lima, where five deaths among the customers of a dairy where a case of typhoid fever was present, were shown to have been infected by the milk. The outbreak occurred in Bucyrus and comprised eighteen cases. This outbreak was investigated by Dr. Walter E. Obetz, assistant epidemiologist of the State Board of Health. Dr. Obetz found that this outbreak possessed many of the characteristics of a milk outbreak, but final proof was lacking. The suspected dairy used the commercial method of pasteurization and this was changed to the "holding" method when the milk was suspected.

Cincinnati

Want Board of Medical Directors Reestablished.—Seven physicians called on Mayor Speigel October 5, to discuss the appointment of an advisory board of three for the new city hospitals. Of the deputation Dr. Simon P. Kramer urged the reestablishment of the board. Dr. Charles A. L. Reed and Dr. Allen B. Thrasher expressed dissatisfaction with the present manner of handling affairs, but did not definitely recommend the reestablishment of the board. Drs. Frank B. Cross, Benjamin K. Rachford, John C. Oliver and Christian R. Holmes were opposed to the reappointment of the supervising board.

Personal.—After many years of service Dr. Robert Sattler has resigned as senior ophthalmologist to the Cincinnati Hospital, and Dr. Victor Ray has been promoted to fill the vacancy. Dr. Frederick W. Lamb has been appointed junior ophthalmologist.——Dr. Louis Stricker has been appointed by the commissioners of Hamilton County as special clerk in charge of the relief for the indigent blind. The position pays $1,200 a year.——Dr. Charles P. Kennedy has resigned as assistant superintendent of the Tuberculosis Hospital.——Dr. Archibald I. Carson has resigned as librarian to the Academy of Medicine, a position he has held for many years.——Dr. Rufus A. Van Voast has been accepted as a volunteer surgeon at the front region in the French army.——Drs. Henry Kennon Dunham and Julien E. Benjamin have returned from abroad.——Dr. John M. Withrow has resigned as a member of the board of hospital commissioners.——Dr. Georges Rasetti is at present attached to an army hospital in France.

PENNSYLVANIA

Portrait of Old Member Presented.—At a meeting of the Berks County Medical Society in Reading, October 12, a portrait of Dr. Liggett, who was a practitioner of Birdsboro half a century ago, was presented to the society.

Diphtheria Closes Schools, Churches and Motion-Picture Theaters.—Diphtheria has broken out in Seward, Chester, Hazleton, Greensburg, Ridgway, Wilkes-Barre and Philadelphia. Schools, churches and theaters have been closed in Seward and Ridgway. Elsewhere cases appear to be scattering.

Personal.—Dr. James M. Knowlton and family, Tarentum, has been obliged to go to the Southwest on account of his health, and will locate in Premont.——Dr. Charles R. Holshue, Shamokin, who has been seriously ill with septicema due to a wound in the thumb during a surgical operation, is reported to be convalescent.——Dr. Gaily B. Dunkle, Washington, fractured his right arm near the wrist, while cranking his automobile, October 7.——Dr. William J. Condon has been appointed medical inspector of the public schools of Susquehanna and surrounding districts.——Dr. John B. McAneny, Johnstown, and Dr. and Mrs. Patrick H. Kearney, Scranton, have returned from abroad.

Philadelphia

Personal.—Dr. Henry K. Gaskill has been appointed assistant professor of dermatology in Jefferson Medical College.——Dr. Rufus Cole of the Rockefeller Institute will deliver the Frederick A. Packard lecture of the Philadelphia Pediatric Society in the College of Physicians, November 10.——Dr. Frederick P. Gay of the University of California will deliver the Samuel D. Gross lecture before the pathological society at the College of Physicians, October 22.

Tuberculosis Conference.—The North Atlantic Tuberculosis Conference held its session at the Bellevue Stratford, October 16, under the auspices of the National Association for the Study and Prevention of Tuberculosis. Dr. Charles William White of Pittsburgh presided, and the speakers at the morning session were Charles M. DeForest, the salesmanager of the Red Cross seals; State Charities Aid Association of New York; Frank H. Mann, of the New York Committee on the Prevention of Tuberculosis; Mrs. Theodore N. McLaughlin, secretary of the Red Cross Chapter, District of Columbia. At the conclusion of the morning session the first annual meeting of the New Jersey Anti-Tuberculosis League was held at the Hotel Walton in the form of a luncheon. At the afternoon session Dr. George M. Kober of Washington, was the chief speaker. At 5 o'clock the delegates attended a reception at the Phipps Institute and later a dinner at Kuglers. At the evening session Miss Ellen M. La Motte of Baltimore, A. W. MacDougall, secretary of the Newark Bureau of Associated Charities, and Bailey B. Burritt, chief director of the New York Association for improving the condition of the poor, were speakers.

VERMONT

State Physicians Meet.—The Vermont State Medical Society held its one hundred and first annual meeting in Rutland, October 8 and 9, under the presidency of Dr. A. Lawrence Miner, Bellows Falls, who delivered an address on "Malignant Disease." Dr. John George Adami, professor of pathology in McGill University, Montreal, delivered an address on "The Evolution of Infection." The following officers were elected: president, Dr. William W. Townsend, Rutland; vice-president, Dr. William G. Ricker, St. Johnsbury; secretary, Dr. James M. Hamilton, Rutland (reelected); treasurer, Dr. Charles F. Dalton, Burlington (reelected). The Society, by a vote of 73 to 1, passed a resolution to use all honorable means to obtain legislation to provide for the maintenance of the Vermont Medical College, Burlington, its discontinuance being characterized as a state calamity. At the meeting of the House of Delegates, a committee on health and public instruction was chosen, consisting of Dr. Edward H. Ross, St. Johnsbury; Dr. George G. Marshall, Rutland; Dr. Grace W. Sherwood, St. Albans; Dr. John H. Blodgett, Bellows Falls, and Dr. George I. Forbes, Burlington. The House of Delegates also elected Dr. Stanton S. Eddy, Middlebury, as councilor for the first district; Dr. Clayton W. Bartlett, Bennington, for the second district; Dr. Robert M. Wells, Orleans, for the third district, and Dr. George L. Bates, Morrisville, for the fourth district.

VIRGINIA

Free Literature on Scarlet Fever and Diphtheria.—The State Board of Health announces for the benefit of physicians and parents that bulletins giving bedside directions for the care of scarlet fever and diphtheria are avilable for free distribution.

Measures Against Diphtheria.—The State Board of Health October 3 issued a bulletin requesting the cooperation of the school officials and teachers in the attempt to reduce the time the public schools are closed in various parts of the state on account of diphtheria among the pupils. Stress is laid on the importance of examining the children presenting suspicious symptoms and excluding them from the schools until they are pronounced free from danger. The state has made arrangements for distributing diphtheria antitoxin at a very low cost and without delay.

Personal.—Dr. Samuel Childs Mitchell, formerly head of the Medical College of Virginia, Richmond, was installed as president of the Delaware College, Newark, October 10.——Mr. William Schenck, the eldest son of Dr. Powhatan S. Schenck, health commissioner of Norfolk, has been elected president of the student body of the Medical College of Virginia and University Medical College, Richmond.——Dr. Frank H. Hancock has been appointed assistant health commissioner of Norfolk, vice Dr. Claude D. J. MacDonald.——Drs. C. J. Andrews, George T. Myers and J. C. Fleet have also been appointed assistants in the department of health of Norfolk.——Dr. Cullin S. Pitt has been designated as physician of the Richmond and Westhampton colleges.

New Society Meets.—The Dinwiddie County Medical Society recently organized held a meeting in Petersburg, October 9, with Dr. William C. Powell presiding and Dr. George S. Fultz, Butterworth, secretary and treasurer. A committee on health and legislation was appointed consisting of Dr. W. Preston Hoy and Dr. Hampden A. Burke, Petersburg, as secretary. A committee was also appointed to consider the advisability of establishing a medical library in Petersburg. This committee consists of Dr. William F. Drewry, Robert A. Martin, Elisha L. McGill, Dibrel C. Mayes, Church Road, and Julian R. Beckwith.

CANADA

Personals.—Dr. Harry Morell, Regina, editor of the *Western Medical News*, is a member of the Canadian Expeditionary troops which recently arrived in England.——Dr. Andrew Macphail, Montreal, editor of the *Canadian Medical Association Journal*, is a member of a class of physicians taking instruction in Toronto in field ambulance work.

Professor of Anatomy Called to the Colors.—Dr. Robert W. Geddes, professor of anatomy in McGill University, has been called by the British war office to take command in one of the home regiments—senior major in the Northumberland Fusiliers. Dr. Geddes was in charge of the McGill University provisional regiment. He was a reservist of the British army, having served with distinction in the South African War. He became professor of anatomy in McGill in 1912.

Typhoid Inoculation of the Canadian Troops.—Dr. Chas. A. Hodgetts, Ottawa, medical advisor to the Canadian Conservation Commission, had charge of the inoculations of the Canadian troops while in camp at Valcartier. Among his assistants were Dr. Theodore A. Lomer, medical officer of health, Ottawa; Dr. Harry Morell, pathologist to the Regina General Hospital, and Dr. Robert E. Wodehouse, district medical officer of health, Port Arthur, Ont. There were required about forty-five thousand injections and in this large number there were reported no cases of serious or severe constitutional reactions, nor any infected arms.

Hospital News.—Plans for a new $200,000 hospital at Hamilton, Ont., have been prepared. The building will be three stories high and will accommodate 500 patients. The citizens recently refused to vote $125,000 for the purposes of improving the present city hospital.——A new hospital was recently opened at Grassy Lake, Alberta. It is to provide accommodation for homesteaders in the district. The medical superintendent is Dr. L. K. Poyntz.——In the province of Saskatchewan there are twenty-six hospitals having a total bed capacity of 1,100 to 1,200 beds. A movement is on foot to have rural municipalities join together in establishing hospitals. To the hospitals the provincial government gives 50 cents a day for each patient and $1.50 is allowed for patients who are unable to pay anything.——Plans have been prepared for an addition to the Hospital for the Insane at Battleford, Sask. More accommodation is required for male patients as there has been a rapid increase in the number of these admissions. There are to be three additional units. ——The Vancouver General Hospital recently opened a new surgical ward containing twenty-five beds.

GENERAL

Tri-State Association Meeting Place.—The executive council of the Tri-State Medical Association of the Carolinas and Virginia, announces that it has accepted the invitation of the Medical Society of the State of South Carolina and of Charleston County, to hold its seventeenth annual meeting in Charleston, S. C., Feb. 17 and 18, 1915.

Tri-State Society Meeting.—The Tri-State Society of Iowa, Illinois and Missouri held its twenty-second annual session at Des Moines, October 13 and 14 and the following officers were elected: president, Dr. Lewis Schooler, Des Moines; vice-president, Dr. Clarence L. Wheaton, Chicago; and secretary, Dr. Charles H. Parkes, Chicago. The next meeting will be held in Chicago in September, 1915.

The Clark Epigram.—The Department of Health of Iowa is immortalizing the name of Governor Clark by spreading broadcast an epigrammatic expression recently made by him at a meeting of the State Board, of which he is ex-officio a member. The accompanying illustration shows a button

embodying the epigram—"THE HEALTH AND HAPPINESS OF THE PEOPLE ARE PARAMOUNT TO EVERY OTHER ISSUE." The button, which is being freely distributed through Iowa, is lettered in black on an orange background, and measures 1¼ inches in diameter. Governor Clark's epigram reminds us of a similar expression of Benjamin Franklin, "Public health is public wealth"; of Disraeli's, "The care of the public is the first duty of the statesman"; and of Gladstone's, "In the health of the people lies the strength of the nation." The distribution of this button is one of the efforts of the Iowa board to arouse the public to a realization of the importance of health.

WAR NOTES

Spain Will Receive Wounded.—Spain has sent offers to France to receive 30,000 wounded in her hospitals. Of these, the hospitals of Madrid will accommodate 6,000.

Guarding Against Cholera.—The Swiss Government on October 16 officially declared quarantine against Russia, Austria, Servia and Galicia, on account of cholera.

Cholera Immunization.—It is reported that 120,000 packages of cholera serum have been received at the front from Vienna and that the troops are being inoculated by regiments.

Dogs Wanted to Aid in Recovering the Wounded and Sick in the Field.—Our German exchanges contain appeals to owners of dogs that could serve in this way to donate them to the cause.

Physician Receives War Decoration.—The iron cross has been bestowed on Dr. Max Kirschner of Munich serving at the German front with the third Bavarian *Feldpionier* company.

Scarcity of Physicians in Eastern Prussia.—The medical chamber of east Prussia calls for medical aid as the smaller towns have been drained of physicians, and expert medical skill is particularly needed to ward off epidemic diseases liable from the east.

Transport of the Wounded.—On September 28, the first trainload of wounded soldiers, mostly from the battlefield of the Aisne, were brought from the South to Scotland and conveyed to Number 2 Hospital at Grayleith. Stobhill Hospital, Glasgow, has received 300 wounded soldiers.

Tetanus Antitoxin for Allied Troops.—Philadelphia newspapers announce that an order for six thousand packages of tetanus antitoxin has been placed by the British government, with a local firm of chemists. The antitoxin is to be used especially for the French and English troops, who are especially exposed in the trenches.

Drugs Wanted.—Due to the embargo placed on drugs by continental countries, South American and English firms are having difficulty in securing supplies. In *Daily Consular and Trade Reports* for October 13, four English, two Russian and one Spanish firm request American companies to quote prices on various drugs and chemicals.

Exclusion of Alien Students Henceforth from German Universities.—The *Deutsche med. Wchnschr.* states that hitherto no discrimination has been made against foreign students at German universities except a comparatively small number of Russian students without due credentials. But this exclusion will now be extended to British, French, Belgians and Japanese.

British Physicians Join Expeditionary Force.—The Secretary of State has appointed Sir John Rose Bradford, Sir Wilmot Herringham and Sir Almroth Wright, consulting physicians with the British Expeditionary Force in France, with the rank of colonel. He has also decided to appoint a special sanitary committee to advise the council on any questions pertaining to the health of the troops.

Transport of Wounded in France.—Arrangements are being made by the Red Cross Society for the equipment of a mobile unit consisting of a field hospital, ten ambulances, subsidiary motor cars and motor trucks, with a staff of four physicians and a complement of nurses and orderlies. The purpose of this unit will be to provide an intermediate halting place between the fighting line and the base hospitals and a means of transport in either direction.

The Red Cross Ship.—After landing units at Bordeaux for the French army, the American National Red Cross Ship *Red Cross*, sailed for Rotterdam and there landed units for Germany, Austria and Russia. Two units arrived in Vienna, October 14, one of which proceeded immediately to Hungary and the other was assigned to duty in the suburbs of Vienna.——The hospital ship which sailed from New York via the Mediterranean for Servia, reached Nish safely on October 15. Dr. Edward W. Ryan is in charge of the Servian unit.

More Medals Sent to the Melting Pot.—Kobert of Rostock has repudiated not only the British but the Russian medals that have been presented to him. Neisser of Breslau has donated his Cavendish medal to the Red Cross. The family of Emil du Bois Reymond has donated the Helmholtz gold medal, of an intrinsic value of $423, to the relief fund, saying that this medal, representing the highest appreciation in his own land of the scientific achievements of du Bois Reymond, is honored more by devoting it to the service of the country than by preserving it.

Prevention of Disease in Active Service.—Sir William Osler, who has recently been called to the colors in addressing officers and men in the military camp, recently remarked that the army did not march on its belly, but on its brain. The cilia are a more important enemy than bullets. Typhus, malaria and cholera were not likely to be encountered, but dysentery, pneumonia and typhoid were the scourges to be feared. Of these, dysentery could be prevented by boiling the water and typhoid fever by antityphoid inoculation, but pneumonia was more difficult to prevent on account of coughs, colds, exhaustion and exposure, all of which lower vital resistance.

LONDON LETTER

LONDON, Oct. 9, 1914.

The War

Preparations of all kinds for this great war, to which we are about to send a large force instead of the present one of about 200,000 men, are being made "without haste, and without pause." The call to arms has quickly been responded to and the half million of men required for the new army have been obtained without difficulty. A further army of a second half million has begun to be organized. Almost the whole of the young men of the country are coming forward with enthusiasm. The physique of the new army is excellent, though some of its members are very youthful and require seasoning. Their housing in a country which maintains only a small standing army presents some difficulties. Huts accommodating from twenty to fifty men are being erected on an extensive scale, which will be much warmer in winter than tents. Timber hospitals are also being erected. The vaccination and inoculation against typhoid fever of men going to the front have been performed on a large scale.

The effects of the war on the life of the country are widespread. In the medical profession they are noticeable in many ways. The staffs of hospitals are depleted, and visiting surgeons and physicians have undertaken duties usually performed by residents. Many of the students have gone to the front, some as dressers, but the greater number have enlisted in the fighting ranks. The output of medical literature is much diminished as shown in the contraction of all the medical journals. The program of the Royal Society of Medicine shows a great reduction in the number of meetings for the forthcoming session. An unfortunate result of the war is the closure of the Polyclinic. This unique and useful institution was founded fifteen years ago mainly by the efforts of the late Sir Jonathan Hutchinson. Its object was to provide postgraduate instruction for physicians in the form of lectures and demonstrations. The annual subscription was $5, and about 1,000 members were obtained. This was not sufficient to pay the expenses; appeals for donations were made on more than one occasion and generously responded to by a limited number of physicians. A scheme, which appeared to be successful, was in process of being carried out for the abolition of the debt of the institution. When the war broke out financial losses, actual and prospective, rendered many unable to carry out promises of help. Moreover, the support of American and colonial visitors fell to the vanishing point.

At the front the supply of surgeons, dressers and nurses is ample, indeed more than sufficient. Two well-known surgeons, Sir Anthony Bowlby and Mr. Makins, have been appointed consultants attached to General French's staff as colonels. Both have experience of military surgery in the South African War. Their duties will be to visit any part of the line where a second opinion on a case may seem desirable. Some difficulties are being experienced in bringing down a large number of wounded from the rail heads or clearing hospitals to the base. The journeys are often long and interrupted. This is due to the limited number of lines, which have also to be used for the dispatch of reinforcements, ammunition and food. Some improvements are about to be made in French railway rolling stock, and by the arrival of a complete ambulance train which is being fitted in England. A heavy list of casualties has occurred among the men of the Army Medical Corps.

PARIS LETTER

PARIS, Oct. 1, 1914.

Extraction of Bullets by Means of Electromagnets

During a recent session of the Académie des sciences, Professor Dastre reported the results of his attempts at the Desgenettes Hospital in Lyons to facilitate the extraction of bullets by the use of high power electromagnets. The German bullets have a nickel-steel jacket which can be attracted by a powerful magnet, causing a swelling under the skin which thus makes it easy to cut down on the ball. If the bullet is engaged in the muscles, under the influence of the electromagnet, it moves toward the surface, revealing its presence, first by a characteristic pain and then by a swelling of the skin.

The Costume of the Voluntary Nurses

Complaints with regard to the conduct of certain volunteer nurses of the Red Cross, who, for the sake of attracting attention, wore their nurses' costumes in the streets, have been laid before the minister of war. He has consequently forbidden the wearing of nurses' costumes outside of the institution to which the wearer belongs, giving as his reason the necessity of protecting from undeserved criticism the real nurses, who shun publicity and who by their devoted services have won the respect and gratitude of the medical profession, the sick and wounded soldiers and the public.

Hospital Ship for the Convalescent Wounded

One of our great transatlantic liners, the *Gascogne*, has just been transformed into a hospital ship for the convalescent wounded. It has been completely disinfected and painted. More than 450 convalescents removed from auxiliary or temporary hospitals can be made comfortable in it. The criticism has been made that the convalescents might not have sufficient air space in their cabins. This is not so. The great saloons, smoking-rooms, music rooms and reading-rooms have been made over into dormitories, in which new wooden beds have been placed, separated by considerable intervals. The saloons, which are near the upper bridges, are reserved for the wounded who walk with greater difficulty. The first cabins are for convalescent underofficers. The second cabins and saloons have been made into dormitories and likewise the immense steerage space from which the upper bunks have been removed, making ample airspace. Dining-rooms have been installed on the bridge of the first deck, which in a few days will be glazed. A physician major and an auxiliary physician will remain permanently on the *Gascogne* to watch over the condition of the wounded convalescents. If, as seems probable, the experiment with the *Gascogne* is successful, another liner, the *Bretagne*, may likewise be transformed into a hospital ship.

Appointment of Adjunct Directors of the Health Service

The increasingly heavy task imposed on the directors of the regional services of health by the numbers of the wounded French and German soldiers, would be too great for them if they did not have assistance. The minister of war is convinced of the necessity of the directors keeping track of the execution of their orders and of the organization and functioning of the sanitary establishments so as to be assured that all needs are satisfied everywhere and that the wounded are receiving necessary attention and are surrounded by the care to which they are entitled. As soon as the administrative demands of the service became so pressing as not to leave the directors free to move about it became urgent to appoint adjunct directors who are to be especially charged with such oversight and control. They are to be in particular, intermediaries between the directors of the regional services of health and the various societies of the Red Cross and of private philanthropy, whose efforts they will coordinate.

Society Formed to Care for the Wounded in Transit

There has just been organized under the patronage of the French press an Oeuvre des trains de blessés intended to give the numerous wounded passing through the stations of Paris and the vicinity, the care, food and clothing of which they are in need.

Present-Day Modifications of Military Surgery

September 28, Professor Delorme, medical inspector-general of the service of military health, read before the Académie des Sciences a report of the inspection of army hospitals and ambulances which he had made by order of the minister of war. Delorme emphasized particularly the modifications of military surgery necessitated by the character of modern battles which are distinctly siege operations. While in ordinary battles the first line of medical assistance is sufficient, thanks to the soldiers' individual packets of dressings, to assure sufficient asepsis of wounds to permit the transportation of the wounded to distant hospitals. At present in the sanitary formations of the front, one finds patients who have lain in the trenches without care, sometimes for four or five days. The original asepsis no longer exists. The wounds are infected and purulent and transportation to a distance would be dangerous. Surgery must be performed at the front. While bullet wounds, thanks to the swiftness of the projectile and the small area of the wounds, heal quickly without special care, the case is otherwise with artillery wounds, which are large and in which foreign matter, such as earth and fragments of clothing introduced by the projectile, too often cause diffuse phlegmons, gangrene and tetanus. It is necessary to operate rapidly, to extract the balls and the fragments of shells and to disinfect the wounds carefully. The rôle of the ambulances and hospitals of the firing-line has been greatly increased.

The greater number of the deaths among the wounded at present are attributed to gaseous gangrene and to tetanus, which are almost unknown to ordinary surgery and were very rare at the beginning of the war. Against gaseous gangrene, injection of hydrogen peroxid may be used successfully. After having determined the limits of the gangrenous tissue, there is a chance of arresting the progress of the trouble by making a circle of injections of from 40 to 100 c.c. of hydrogen peroxid about a centimeter apart around the limb. A few centimeters above this circle of punctures and in the intervals of the first, another circle may be made and a third still higher. These injections are to be renewed as often as necessary. In cases of fulminating gangrene the injections should be made in the aponeuroses of the affected parts after removing the necessary tissue.

As for tetanus, reliance must be placed on prevention rather than cure. As Dr. Roux, director of the Pasteur Institute, says, the antitetanus serum, of which 160,000 doses have been delivered to the army since the beginning of the war, ought to be placed specially in the first-line ambulances and not in those of the rear. This serum is only preventive, it is not curative. It acts on the tetanus toxin only while it is still in suspension in the blood; it is powerless when the toxin has reached the nerves. One should not wait, therefore, until nervous complications have manifested themselves, for then either the intoxication is violent and death is inevitable, or it is slight and cure may be effected without the sacrifice of any of the precious serum which can be usefully employed in saving other lives. In cases of declared tetanus, one may use intraspinal injections of magnesium sulphate, which arrest the contraction of the jaws and make it possible to feed the patient.

Dr. Delorme showed some simple apparatus which he had had made to replace the old metal splints used in the treatment of fractures. These are pliable sheets of metal cut in suitable lengths for use on the arm or leg, thickly padded with cotton on one side and furnished with straps. The splint is placed on the wounded limb on which tampons of wadding have been so placed as to assure a pressure capable of replacing the fragments of bone. The splint is then bent so as to fit the wounded limb and the straps are fastened. This apparatus is light, occupies a minimum amount of space and is consequently easy to transport and permits considerable economy of time while reducing the chance of infection.

Marriages

Passed Assistant Surgeon Thomas Wrightson Raison, U. S. N., to Miss Margarita L. Higgins of Denver, Colo., in New York City, September 18.

Surgeon George Rothganger, U. S. N. (retired), San Francisco, Cal., to Mrs. Elizabeth Chamberlain Bull of Oakland, Cal., September 5.

Carl Joseph Geiger, M.D., Syracuse, N.Y., to Miss Catherine Reid of River John, N. S., in Providence, R. I., October 7.

Thomas Lamar Williams, M.D., Mt. Carmel, Pa., to Miss Ellen MacFayden of Newark, N. J., in New York City, October 6.

Judd Hariss Kirkham, M.D., to Miss Ora Edyth Burrell, both of Anamoose, N. Dak., in Minot, N. Dak., September 14.

William J. Shenberger, M.D., New Bridgeville, Pa., to Miss Ida Bell Smith of Windsor, Pa., in Baltimore, October 1.

Thomas James Glenn, M.D., Covington, Ky., to Miss Margaret Downs of Cincinnati, in Ludlow, Ky., October 7.

John Henry Cunningham, M.D., Boston, to Miss Theresa van der Hueber Ingersoll of New York City, October 8.

Milton Eben Blanchard, M.D., Los Angeles, Cal., to Mrs. Jennie DeMott of Colorado Springs, Colo., September 27.

Henry John Conner, M.D., Duluth, Minn., to Mrs. Margaret Deary of Spokane, Wash., in Chicago, October 8.

Carl Hayes Lund, M.D., Douglas, Ariz., to Miss Marjory Lawrence Gilson of Arlington, Mass., September 25.

Eliot Sanborn Cogswell, M.D., Hartford, Conn., to Miss Ruth B. Merriam of Kingston, Mass., September 22.

William Shuler Judy, M.D., to Miss Margaret Eulalie Wiggins, both of St. George, S. C., September 10.

Theodore Chapin Beebe, M.D., Boston, to Mrs. Ethel H. Rust of Boston, in London, England, August 22.

Cyrus F. Newcomb, M.D., Champaign, Ill., to Miss Geraldine Bullard of Mechanicsburg, Ill., October 7.

William Frederic Moore, M.D., Llanerch, Pa., to Miss Marjory Thornton of Philadelphia, October 21.

Henry James Graham, M.D., to Mrs. Theresa Tromp Jernegan, both of South Bend, Ind., October 8.

Charles Everett Oates, M.D., Little Rock, Ark., to Miss Ilse Frischmeyer of Austin, Texas, recently.

Edward Martin Colie, Jr., M.D., to Miss Elinor Newman Tidden, both of New York City, October 5.

Edmund William Butler, M.D., San Francisco, to Miss Wilma Jacobs of Alameda, Cal., October 19.

William C. Bridge, M.D., to Katherine Pleavin, M.D., both of Elgin, Ill., in Chicago, October 7.

Henning Theodore Mostrom, M.D., Geneva, Ill., to Miss Mildred Hinds of Lena, Ill., September 30.

John MacLachlan, M.D., Cleveland, Ohio, to Miss Edna Milliken Sloan of Pittsburgh, October 3.

George Romeo Fugina, M.D., Madison Lake, Minn., to Miss Thro of Mankato, Minn., recently.

Leo Sebastian Schumacher, M.D., to Miss Gertrude O'Reilly, both of Cleveland, October 7.

Ransom Smith Robertson, M.D., to Miss Mary P. Doing, both of Brooklyn, N. Y., October 6.

Joseph W. Hutchinson, M.D., to Miss Vera Surface, both of Marquette, Neb., October 7.

Lucas Smith Henry, M.D., to Miss Marguerite Allewel, both of Syracuse, N. Y., October 6.

V. 191

Deaths

James Gregory Mumford, M.D. Harvard Medical School, 1890; eminent as a surgeon and writer of surgical text-books and monographs; died at his home in Clifton Springs, N. Y., October 19, from heart disease, aged 50. He was born in Rochester, N. Y., Dec. 2, 1863, and took his academic course at Harvard University from which he received the degree of A.B. in 1885. For twelve years after his graduation Dr. Mumford practiced in Boston and served on the surgical staff of Carney and the Massachusetts General hospitals. In 1895 he was made assistant in surgery, and in 1902 instructor in surgery in his Alma Mater. In 1912 he moved to Clifton Springs, N. Y., where he became physician-in-chief of the Clifton Springs Sanatorium and Hospital.

He was a Fellow of the American Medical Association, American Surgical Association and American College of Surgeons, and a member of many surgical and medical societies, both of this country and abroad. In 1892 and 1893, Dr. Mumford served as surgeon to the Naval Brigade, Massachusetts Volunteer Militia and was later commissioned as a first lieutenant in the Medical Reserve Corps, U. S. A. Among his chief contributions to the literature are his Practice of Surgery, which appeared in 1910; Surgical Memoirs in 1908; One Hundred Surgical Problems in 1911; A Doctor's Table Talk in 1912, and many articles and essays in medical journals; Dr. Mumford also was the author of the introductory article on History of Surgery in Keen's System of Surgery and the editor of Harrington's History of the Harvard Medical School.

Jerome Keating Bauduy, M.D. Jefferson Medical College, 1863; a member of the Missouri State Medical Association; formerly president of the St. Louis Medical Society; a veteran of the Civil War; for twenty-four years physician and chief to St. Vincent's Asylum, St. Louis, and at one time consulting physician to the St. Louis Hospital for the Insane; professor of nervous and mental diseases and medical jurisprudence in Missouri Medical College and Washington University for nearly thirty years; professor emeritus of psychological medicine and diseases of the nervous system in Washington University; author of a number of books on nervous diseases; died in the East about October 11, aged 74.

George Brown Reynolds, M.D. Washington University, Baltimore Md., 1872; a Fellow of the American Medical Association; formerly chief surgeon of the Police Department of Baltimore; a member of the board of managers of the Consumptive Hospital of Maryland and physician to the Boys' Home and Children's Aid Society of Baltimore; a Confederate veteran; while answering an emergency call at the University Club, Baltimore, October 2, died suddenly from heart disease, aged 68.

Thomas Opie, M.D. University of Pennsylvania, Philadelphia, 1861; surgeon in the Confederate service during the Civil War; one of the founders, professor of obstetrics and gynecology and for thirty-three years dean of the College of Physicians and Surgeons, Baltimore; formerly surgeon to the Baltimore City and Bayview hospitals and consulting gynecologist to the Hebrew Hospital, Baltimore; died at the home of his daughter in Washington, D. C., October 5, aged 74.

Matthew Rippey Carson, M.D. Albany, N. Y. Medical College, 1857; director of the Canandaigua, N. Y. Hospital of Physicians and Surgeons and a member of the staff of the Thompson Memorial Hospital, Canandaigua; whose fiftieth anniversary as a member of the Ontario County Medical Society was celebrated in October, 1909; a charter member of the Canandaigua Society of Physicians and Surgeons; died at his home in Canandaigua, October 6, aged 78.

Frank Melvin Thoms, M.D. University of Michigan, Ann Arbor, 1891; formerly a member of the American Medical Association; for twenty-three years a practitioner of Lansing, Mich.; physician to the State School for the Blind in that city; died at his home in Lansing, October 6, from disease of the liver, aged 44.

Oscar Weston Hulin, M.D. Columbus (Ohio) Medical College, 1892; a Fellow of the American Medical Association; for twenty-one years a beloved and respected practitioner of Greenford, Ohio; died at his home in that place, October 6, from typhoid fever complicated by pneumonia, aged 48.

Charles Henry Lewis, M.D. University of Michigan, Ann Arbor, 1866; a member of the medical staff of the Jackson City Hospital; died at his home in Jackson, Mich., October 7, from heart disease, aged 74.

Charles Reuel Gibson, M.D. Medical School of Maine, Brunswick, 1875; a Fellow of the American Medical Association; a member of the Surgical Staff of the Cottage Hospital, Woodsville, N. H.; physician to the Grafton County Hospital and local surgeon to the Boston and Maine Railroad; president of the Woodsville Guaranty Savings Bank; died at his home in Woodsville, about October 4, aged 61.

Luther Walker Jenkins, M.D. Rush Medical College, 1911; assistant surgeon U.S.P.H.S. and assigned to duty on the U. S. Revenue Cutter *Manning;* a Fellow of the American Medical Association; aged 33, was drowned with five other men when a boat from the *Manning* was swamped in Unalga Pass off Cape Sariches, Alaska, while bringing off to the cutter a light-house employee who was ill.

David Thomas Smith, M.D. University of Louisville, Ky., 1870; lecturer on medical jurisprudence in his Alma Mater; for several terms a member of the school board of Louisville; died at his home in that city, October 1, from uremia, aged 73. At a meeting of the Louisville Society of Medicine, October 6, resolutions of sympathy and regret of the death of Dr. Smith were adopted.

Philip Mooney, M.D. University of Vermont, Burlington, 1882; a member of the Massachusetts Medical Society; and once vice-president of the Essex North District Medical Society; a member of the visiting staff until 1903 and later consulting physician to the Addison Gilbert Hospital, Gloucester; died at his home in Gloucester, Mass., September 27, from heart disease, aged 58.

Frederick B. Read, M.D. Jefferson Medical College, 1867; a member of the Medical Society of the State of Pennsylvania and local surgeon of the Pennsylvania System at Osceola Mills, Pa.; while on his way to Pittsburgh to attend the meeting of the State Medical Society was seized with pneumonia at the home of his sister in Ebensburg, Pa., and died there, September 30, aged 68.

Thomas B. McKown, M.D. Atlanta, Ga., Medical College, 1885; a Fellow of the American Medical Association; surgeon to the Durham Coal and Coke Company; Lookout Mountain Coal and Coke Company and Georgia Penitentiary; and a practitioner of Pittsburg, Ga.; died at the home of his mother in Jonesboro, Ga., September 24, aged 54.

Jefferson Davis Robertson, M.D. University of Louisville, Ky., 1891; a member of the Kentucky State Medical Association; formerly city physician and one of the founders of the City Hospital of Paducah, Ky.; was found dead in his office in Paducah, Ky., October 4, from heart disease, aged 52.

Frithiof N. H. Gyllenhammar, M.D. St. Louis College of Physicians and Surgeons, 1891; a member of the South Dakota State Medical Association; for twenty-four years a practitioner of Gayville, S. Dak.; died in a hospital in Sioux City, Ia., September 28, from diabetes, aged 57.

James Fry Armour, M.D. New York University, New York City, 1867; a member of the Medical Society of the State of Pennsylvania; for nearly half a century a practitioner of Williamsburg, Pa.; died at his home, September 29, from acute dilatation of the heart, aged 71.

Harry Newmayer, M.D. University of Pennsylvania, Philadelphia, 1911; a member of the Medical Society of the State of Pennsylvania, and formerly physician to the Jewish Hospital and Children's Hospital, Philadelphia; died at his home in that city, September 28, aged 25.

Samuel S. Shively, M.D. Eclectic Medical Institute, Cincinnati, 1881; twice coroner of Wyandotte County, Kan.; died at his home in Kansas City, Kan., October 7, aged 75.

Robert Burns, M.D. Rush Medical College, 1881; formerly of Wichita, Kan.; died in Riverside, Cal., July 12, from tuberculosis, aged 62.

Pompey Davis, M.D. Memphis Hospital Medical College, Memphis, Tenn., 1906; died at his home in Hickory Valley, Tenn., recently.

Henry W. Granel, M.D. Eclectic Medical Institute, Cincinnati, 1875; died at his home in Linden Beach, Ohio, July 3, aged 66.

Hiram W. Lindsey, M.D. Eclectic Medical Institute, Cincinnati, 1885; died at his home in Moorefield, Ohio, August 7, aged 60.

Horatio Craig, M.D. Albany, N. Y. Medical College, 1878; died at his home in Ballston Spa, N. Y., July 13, aged 60.

Oscar S. Pratt, M.D. University of Buffalo, N. Y., 1871; died at his home in Canaseraga, N. Y., August 8, aged 78.

Dwight Gustavus Hubbard, M.D. University of Buffalo, N. Y., 1869; died at his home in Buffalo, July 25.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THOMPSON'S MALTED FOOD COMPANY

And Its Blood, Nerve and Tissue Builder, "Hemo"

During the past eighteen months THE JOURNAL has received inquiries from physicians in various parts of the country asking for information regarding "Thompson's Malted Food Company" of Waukesha, Wis., which for sometime has been selling and trying to sell its stock to physicians and others. In reply THE JOURNAL called attention to the fallacy of any concern trying to induce people to purchase its stock on the ground that the Bromo-Seltzer company, the Postum Cereal company and others, had been successful.

The earlier name for the Thompson concern was "American Malted Food Company" and originally it had its office and factory in Milwaukee. Its products are "Malted Milk," "Malted Beef-Peptone" and "Hemo." As long ago as 1911 the company was sending out glowing descriptions of the money that might be expected to be made by investing in the concern, which was then known as the American Malted Food Company. According to the company's booklet it was estimated that in the United States and Canada alone $20,000,000 worth of dry malt food products were consumed annually. Further:

"On the most conservative estimate the American Malted Food Company will supply 5 per cent. of the demand or $1,000,000 of the consumption from the very outset. . . ."

At the time this was written (1911) the company claimed that its stock had "been advanced over 100 per cent. in one year's time" and that even then it had "found it advisable to curtail the sale of stock so as not to exceed the prescribed number of shares to any one person." In 1914, however, the company still had its representatives in the field offering stock for sale.

In November, 1913, one physician wrote that three years previously he had purchased stock in the company and *at that time* (1910) was given to understand that dividends would be paid in at least a year! He has received no dividends to date. Other physicians have written that the company's agents in attempting to sell stock have given the impression that the concern either is paying dividends or is about to pay dividends. Still other physicians say that the agents made no claim to them that the concern was paying dividends. To quote from a few of many letters together with the date of the communications:

"Alluring promises of big profits in the near future have been held out by the canvassers. . . ." (September, 1913).

*"No actual promise was made but it was 'estimated' that dividends would be declared 'about the first of the year'" (November, 1913).

"After I said I wouldn't buy any stock was told the company was already paying dividends and I was turning down a good thing." (March, 1914).

"The agent gave me to understand that the profits of the company were enormous and that large dividends would be paid in the near future." (March, 1914).

"Mr. ——— [the agent] told me the company expected to pay dividends as soon as all the stock had been sold. (May, 1914).

"The agent gave me to understand that they were about to pay very generous dividends and that it was a chance to get in on the ground floor on a good thing." (May, 1914).

HEMO

—the food that builds up weak stomachs

If your digestion is poor, if the food you do try to eat doesn't nourish and you feel nerve-worn and weak all over, HEMO—the delicious food-drink will repair your digestion, regulate your bowels, put your system in shape to assimilate all the nourishment your food ought to give you.

The following Druggists sell HEMO—any of them will give you a liberal free sample

HEMO is sold in 50c and $1.00 Packages at any of the drug stores above listed.

Made Only by

THOMPSON'S MALTED FOOD CO.

Waukesha—Wisconsin

A miniature reproduction of a full-page advertisement of "Hemo" appearing in a Milwaukee paper. The original covered 341 square inches.

The price asked for stock during the past year or more has been $1.50 a share, the par value of the stock being held at $1.00. At various times, however, the stock seems to have been purchasable from other sources at a much lower figure. A physician writing September, 1913, stated that he had just been solicited to purchase stock in the Thompson Malted Food Company at $1.50 a share, and that immediately he wrote to two firms, one in Chicago and one in Milwaukee, that sell unlisted securities, asking the price of Thompson's Malted Food Company stock. Both brokers expressed the opinion, according to the physician, that at 90 cents a share the stock would be a "good buy," and both offered to undertake to secure stock at that price. One of the concerns sent a circular to the physician offering the stock at 80 cents. The physician thereon cancelled his order for stock which he had made at $1.50 and declared, that if he bought at all, he would buy from other sources.

HEMO

At the present time the product that Thompson's Malted Food Company seems to be "pushing" is a product it calls "Hemo." According to advertisements, Hemo is "the food that builds up weak stomachs." Hemo, we are told, contains "the iron of spinach, the juices of prime beef, the tonic properties of selected malt in powdered form and the richest sweet milk." Furthermore, "Hemo contains the active principle of selected barley malt . . ." —whatever the "active principle" of barley malt may be.

According to the Thompson Malted Food Company "80 per cent. of the American citizens" are "troubled with anemia" and it is for them that "Hemo has been especially prepared." In a sentence:

"It is a well-known fact that organic iron can be obtained from animal life as well as from vegetable life, and as the digestive organs of a majority of the people are not equal to the task of supplying their bodies with a sufficient amount of organic iron to maintain a supply of a good quality blood, the lack of which results in numerous nervous ailments—insomnia, diabetes, rheumatism, anemia, tuberculosis, etc., it has been found necessary to secure for mankind organic iron in a form that will be concentrated, palatable and most easily assimilated."

This is a sample of the farrago of pseudo-scientific nonsense sent out by this concern in its attempt to sell "Hemo." To continue the quotation:

"With this object in view, the laboratories of Thompson's Malted Food Company have successfully produced and successfully tried out Hemo on the most desperate cases."

In a letter addressed to a physician-stockholder, the statement is made: "Our Hemo-Malted Milk has never had and never will have an equal as a builder of blood, nerve and tissue . . . it will build tissue, nerve and blood in less time than any other food heretofore known."

Disregarding the question whether or not this is a stock jobbing scheme or whether the purchase of the stock is a good investment, there is another side to the matter. It must be evident that the public is not getting a square deal when physicians are financially interested in the products they prescribe for, or recommend to, the sick. Whatever the value of the Thompson products, the method of exploitation and the attempts on the part of the company to get physicians financially interested in its ventures, are to be deprecated. If laymen of a speculative turn of mind wish to invest in the stock of companies putting out "bottled energy," "blood builders" and "nerve repairers" that is their business, but it is certainly neither conducive to the scientific practice of medicine nor to the interest of the public for physicians to be financially interested in products of this sort.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

WHERE IS THIS JOURNAL?

To the Editor:—I am desirous of subscribing to a medical journal, weekly or monthly preferably monthly, which will give in brief concise, accurate form whatever is new and worth knowing in the lines of advance in medicine, surgery and therapeutics; whatever would be of interest to a general practitioner.

I am anxious to subscribe to a medical journal which will cover the field in medicine and surgery somewhat like the *Literary Digest* covers the field in what is going on in the world of secular news.

In brief what I want in a journal coming not too frequent so that a busy physician will have time to go thru it carefully and that will keep you up to date in advance in medicine and surgery, something that a careful study of without unnecessary wrinkles and details and not too voluminous will keep a general practitioner in a way up to date. This journal should record and explain epoch making advances in the entire field of medicine and surgery but should not tire a man to death by going into minute details in laboratory technique, etc. etc. etc. of reactions and tests that the general practitioner is not interested in, just so he knows that there is such a test or reaction and knows the purpose thereof and is satisfied to leave the details to the specialists in that line.

Can and will you oblige me by giving me the name or names of one or more journals published for just this purpose also address of the publishers. Also whether weekly or monthly and annual price thereof if you can.

GEORGE H. PFLUEGER, M.D., North Crystal Lake, Ill.

TREATMENT OF MYDRIASIS

To the Editor:—Your column of Queries and Minor Notes has not been the least interesting of the different departments of THE JOURNAL. I want to ask a question about a case that has been bothering me a little. The patient was hit in the right eye about two months ago with a baseball. After all the inflammation had cleared up it left the iris in a condition of constant dilation (evidently a paralysis of the third nerve supplying the circular fibers). It will contract under the influence of physostigmin. Now I would like to know what the chances are for regeneration of that nerve, and what line of treatment would be the most advisable. I have been giving the patient applications of the faradic current, but see no improvement yet. I might say there is no evidence of any other involvement of the ocular nerves.

W. L. ROBINSON, M.D., Naramata, B. C.

ANSWER.—Dilatation of the pupil may be caused either by irritation of the pupil-dilating center, which might occur early in an inflammation, or by paralysis of the pupil-contracting center from pressure on the third nerve at the base of the brain or in the orbit. Mydriasis also occurs as the result of interruption in the transmission of light impulses from the retina, as for example, in optic-nerve atrophy. From our correspondent's statement there is no evidence of any other involvement of the ocular nerves; it is understood that both vision and accommodation in this eye are normal. The causes of paralytic mydriasis are numerous, but in this particular case in which one eye alone is affected, and the cause known to be a direct blow on the eye, it would seem quite evident that the lesion is in the orbit, and probably some direct pressure on the branch of the third nerve in this region. Local daily applications of about five minutes' duration, with the galvanic current, of ten milliamperes' strength (the negative pole applied around the orbit), in conjunction with ascending doses of nux vomica, will be the most efficacious method of bringing about a regeneration of the nerve.

ARTICLES ON TUBERCULOUS PERITONITIS

To the Editor:—Please cite for me some literature on tuberculous peritonitis, with special reference to unusual manifestations of the disease, and differential diagnosis.

X. Y. Z., Fort Dodge, Iowa.

ANSWER.—The following is a list of references to work on this subject:

Mangiagalli, L.: Tuberculous Peritonitis with Effusion in Pregnant Women, Monatschr. f. Geburtsh. u. Gynec., 1912, xxxvi, Internat. Cong. Festschr.; abstr., THE JOURNAL, Oct. 26, 1912, p. 1584.

Falk, E.: Experimental Roentgenotherapy of Tuberculous Peritonitis, Berl. klin. Wchnschr., Nov. 11, 1912; abstr., THE JOURNAL, Dec. 14, 1912, p. 2192.

Brückner, G.: Cure of Tuberculous Peritonitis by Injection of Nitrogen into Peritoneal Cavity, Berl. klin. Wchnschr., Jan. 19, 1914; abstr., THE JOURNAL, Feb. 28, 1914, p. 736.

Tuberculous Peritonitis, Therapeutics, THE JOURNAL, April 25, 1914, p. 1328.

Sheffield, H. B.: Clinical Interpretation of Chronic Abdominal Enlargement in Children with Special Reference to New Differential Sign Between Rachitis and Tuberculous Peritonitis, Med. Rec., New York, Aug. 30, 1913.

Kaspar, F.: Foreign Body Tuberculous Peritonitis, Deutsch. med. Wchnschr., September, 1913, Nos. 5 and 6.

Spencer, W. C.: Four Cases of Tuberculous Peritonitis and Salpingitis with Menstrual Complications, Brit. Med. Jour., Jan. 10, 1914.

Tweedy, E. H.: Female Sterility as Salient Feature of General Tuberculosis of Peritoneum, Med. Press and Circ., Jan. 15, 1913.

Pantzer, H. O.: How Does Laparotomy Cure Tuberculous Peritonitis? Am. Jour. Obst., February, 1913.

Mouisset, F., and Gaté, J.: Chronic Jaundice from Old Tuberculous Peritonitis, Lyon méd., March 2, 1913; abstr., THE JOURNAL, April 19, 1913, p. 1266.

PRACTICAL TEST FOR LEAD

To the Editor:—Please give the most practical test for the finding of lead in the urine and oblige. C. S. J.

ANSWER.—According to F. C. Wood, *Chemical and Microscopical Diagnosis*, p. 582, the electrolytic test is the most reliable. He says:

"Two hundred and fifty c.c. of the urine to be tested are placed in a porcelain dish and 2 c.c. of chemically pure sulphuric acid are added. The mixture is heated gently, and about 5 grams of potassium persulphate are added in small portions with occasional stirring. The fluid is gradually brought to the boiling point, and in about half an hour the contents of the dish will be almost colorless from the destruction of the organic matter. If the fluid blackens, it is necessary to continue the heating, with the addition of more acid in a Kjeldahl flask until the color is discharged. The heating is continued until the liquid is concentrated to about 50 c.c., and it is then placed in a platinum dish at the negative pole of a galvanic circuit, and a current passed through it for about eight hours. The current may be obtained either from the street mains or from a storage battery, or from a couple of primary cells. After the current has been passed a sufficient time, the platinum dish is washed in distilled water, nitric acid is added, and after removing the excess of acid by heating, a stream of hydrogen sulphid is passed through the liquid." If lead is present the stream of hydrogen sulphid gas will produce a black coloration or precipitate.

STATES LICENSING RETIRED MEDICAL OFFICERS

To the Editor:—A medical officer resigned or retired from the Army, the Navy, or the Public Health Service—does any state recognize such a one as exempted from passing the State Medical Board in order to practice medicine? If so, what states? The foregoing are questions I should like to have answered in THE JOURNAL if of sufficient merit to you to do so, with my initials only. W. E. K.

ANSWER.—The five states in which the licensing boards are empowered to license without further examination retired medical officers of the U. S. Army, Navy and Public Health Service are Alabama, California, Colorado, Illinois and North Dakota.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Little Rock, November 10-11. Sec., Dr. W. S. Stewart, 404 Citizens Bank Bldg., Pine Bluff. Homeopathic, Little Rock, November 12. Sec., Dr. Scott C. Runnels, 900 Scott St., Little Rock. Eclectic, Little Rock, November 10-11. Sec., Dr. C. E. Laws, Ft. Smith.

CONNECTICUT: New Haven, November 10-11. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven. Homeopathic, New Haven, November 10. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven. Eclectic, New Haven, November 10. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

FLORIDA: Palatka, December 2-3. Sec., Dr. E. W. Warren, 102 Front St., Palatka.

LOUISIANA: New Orleans, October 29-31. Sec., Dr. E. L. Leckert, New Orleans.

MAINE: Portland, November 10-11. Sec. Dr. Frank W. Searle, 776 Congress St., Portland.

MISSISSIPPI: Jackson, October 27-28. Sec., Dr. E. H. Galloway, Jackson.

NEBRASKA: Lincoln, November 11-12. Sec., Dr. H. B. Cummins, Seward.

NEVADA: Carson City, November 2. Sec., Dr. S. L. Lee, Carson City.

PENNSYLVANIA: Philadelphia, December 1-3. Sec., Dr. N. C. Schaeffer, Harrisburg.

SOUTH CAROLINA: Columbia, November 9. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

TEXAS: Waco, November 10-12. Sec., Dr. W. L. Crosthwait, Amicable Bldg., Waco.

Massachusetts May Report

Dr. Walter P. Bowers, secretary of the Massachusetts State Board of Registration in Medicine, reports the oral, practical and written examination held at Boston, May 12-14, 1914. The total number of subjects examined in was 13; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 45, of whom 24 passed, including 4 non-graduates, and 21 failed, including 3 osteopaths and 6 non-graduates. The name of one of the colleges was not recorded. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
George Washington University	(1909)	77.8
Hahnemann Medical Coll. and Hosp., Chicago	(1910)	80.2
College of Phys. and Surg., Boston	(1905) 82.4; (1913) 75,	75.5
Harvard University	(1911) 78.6; (1913)	77.5
Tufts College Medical School	(1913) 79.6,	78.2
John A. Creighton Medical College	(1912)	76.2
Dartmouth Medical School	(1897)	75.5
Albany Medical College	(1913)	75
Jefferson Medical College	(1891)	75
University of Vermont	(1902) 82; (1906) 75; (1908)	76.1
University of Toronto	(1912)	78.3
Montreal School of Med. and Surg.	(1913)	75.6
University of Camerino, Italy	(1908)	79
University of Geneva	(1913)	76.2
Non-graduates	75.6, 76.9,	77.2, 77.2

FAILED

Chicago College of Medicine and Surgery	(1913)	71.4
University of Louisville	(1912) 70.7,	68
Eastern University, Baltimore	(1913)	61.2*
Maryland Medical College	(1913)†	
College of Phys. and Surgs., Boston	(1908) 70.9; (1911) 70.6;	(1913) 60.1, 73.9
Royal University of Naples	(1911)	59.9
Syrian Protestant College, Beirut	(1890)	44.6
Non-graduates	41.8, 52.6, 56.7, 65.7,	67, 71.5

* Reported as not recognized by the Maryland State Board of Medical Examiners.

† Examination not completed.

Montana July Report

Dr. William C. Riddell, secretary of the Board of Medical Examiners of Montana, reports the written examination held at Helena, June 30-July 2, 1914. Total number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 20, of whom 17 passed and 3 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
College of Phys. and Surgs., Chicago	(1894) 86.8; (1908)	75.5
Rush Medical College	(1894) 88.2; (1899) 81.5; (1913)	75.7, 82.6
State University of Iowa, College of Medicine	(1909)	75.2
College of Physicians and Surgeons, Baltimore	(1911)	75.9
Kansas City Medical College	(1905)	78.1
St. Louis University	(1913)	80.8
Washington University	(1913)	83.1
University of Minnesota	(1911)	83
John A. Creighton Medical College	(1914)	77.5
Willamette University	(1912)	79
Jefferson Medical College	(1914)	82.7
Medico-Chirurgical College of Philadelphia	(1908)	79.4
University of Toronto	(1914)	78.8

FAILED

Cleveland Homeopathic Medical College	(1905)	69.3
Medico-Chirurgical College of Philadelphia	(1900)	68.6
Marquette University	(1913)	73.1

Maryland Homeopathic June Report

Dr. O. N. Duvall, secretary of the Maryland Homeopathic Board of Medical Examiners, reports the written examination held at Baltimore, June 15, 1914. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 70. The total number of candidates examined was 3, all of whom passed. Two candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Michigan, Homeo. Med. Coll.	(1913)	80.4
Hahnemann Med. Coll. and Hosp., Phila. (1913) 75.1;	(1914)	84.1

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Eclectic Medical College, Cincinnati	(1913)	Penna.
Eclectic Medical Institute, Cincinnati	(1909)	Penna.

Minnesota June Report

Dr. Thomas S. McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the oral, practical and written examination held at Minneapolis, June 2-5, 1914. The total number of subjects examined in was 43; total number of written questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 31, all of whom passed. Twelve candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Northwestern University	(1914) 83, 84,	91
University of Illinois	(1914)	83
University of Minnesota	(1913) 75; (1914) 81, 83, 83, 84, 84, 84, 84, 84, 84, 85, 85, 85, 86, 87, 87, 88, 88, 88, 88, 88, 89, 89, 90, 90, 91, 91.	

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Bennett Medical College	(1913)	Illinois
Northwestern University	(1913)	Illinois
Rush Medical School	(1886) Maryland; (1913)	Illinois
Keokuk Medical College, Coll. of Phys. and Surgs.	(1903)	Iowa
Johns Hopkins University	(1906)	New Jersey
Univ. of Michigan, Dept. of Med. and Surg.	(1904) (1911)	Michigan
John A. Creighton Medical College	(1910)	Nebraska
Eclectic Medical College, Cincinnati	(1910)	Ohio
Memphis Hospital Medical College	(1911)	Iowa
Marquette University	(1913)	Wisconsin

New Hampshire July Report

Mr. Henry C. Morrison, superintendent of Public Instruction of the New Hampshire State Board of Medical Examiners, reports the written and practical examination held at Concord, July 1-2, 1914. The total number of subjects examined was 21, of whom 18 passed and 3 failed. The following required to pass, 75. The total number of candidates examined 21, of whom 18 passed and 3 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Medical School of Maine (1913) 75; (1914) 75, 75, 79.		
Harvard University (1894) 75; (1909) 86; (1914) 75, 79, 80.		
Tufts College Medical School	(1914) 75,	75
Dartmouth Medical School	(1913) 88; (1914) 76,	82
University and Bellevue Hosp. Med. School	(1912)	78
Jefferson Medical College	(1914) 84,	90
University of Vermont	(1913)	76

FAILED

College of Physicians and Surgeons, Baltimore	(1908)	62
National University, Athens	(1895) 43; (1906)	41

V. 191

Book Notices

THE PHILOSOPHY OF RADIO-ACTIVITY, OR SELECTIVE INVOLUTION. By Eugene Coleman Savidge, M.D. Cloth. Price, $1.50 net. Pp. 151, with illustrations. New York: William R. Jenkins Company, 1914.

This book will tax the mentality of those who read it, for there seems to be no solution of the author's system. Some of the philosophic statements are certainly novel. The author speaks of the compression of space into matter, but by what process he does not indicate. "For our purpose ether is space. Compressed ether is compressed space. An atom of radium is a compression of an equivalent of 226 atoms of hydrogen. Hydrogen, our lightest atom known, is itself a compression of ether, or space in its ultimate extension. Matter is therefore made from ether (or space)." In the same way he tells us that velocity is compressed duration. Such ideas are expressed in language the meaning of which proves difficult for the average reader to grasp. Of this the following may serve as an example:

"Thus behind the electron of the atom of the nebular gas, glowing millionfold over the firmament, is the Great Elusive Something That Changes, which is being coiled into denser and denser atoms, until—in million millions of years the celestial becomes terrestrial, and the densest of all atoms, uranium, stands as sire to the whole unrolling progeny of radio-activity.

"The mystery of the coiling and the mystery of the uncoiling are finite when compared with the infinite mystery of the Great Elusive which is being coiled and uncoiled continually."

Or in other words, as Lewis Carroll would say,

'Twas brillig and the slithy toves,
Did gyre and gimble in the wabe.

A CLINICAL STUDY OF THE SEROUS AND PURULENT DISEASES OF THE LABYRINTH. By Dr. Erich Ruttin, Privatdocent in the Otological Clinic, University of Vienna. With a Foreword by Professor Dr. Victor Urbantschitsch. Authorized Translation by Horace Newhart, A.B., M.D., Instructor in Otology, University of Minnesota. Cloth. Price, $2 net. Pp., 232, with 25 illustrations. New York: Rebman Company, 1914.

The translation of Ruttin's monograph on diseases of the labyrinth should be well received by otologists. The subject matter embraces a detailed description of the diseases, the functional manifestations of the normal and diseased labyrinth, the various clinical aspects, and therapeutic considerations. Appended are over a hundred case histories. The illustrations are good.

MODERN MEDICINE: ITS THEORY AND PRACTICE. In Original Contributions by American and Foreign Authors. Edited by Sir William Osler, Bart., M.D., F.R.S., Regius Professor of Medicine in Oxford University, England, and Thomas McCrae, Professor of Medicine in the Jefferson Medical College, Philadelphia. Second Edition. Volumes 2 and 3. Price, $5 each. Philadelphia: Lea & Febiger, 1914.

These volumes sustain the high standard of the first volume in this revision. The topics considered are among the most important in the whole field of medicine. Attention may be called especially to the exposition of diseases of metabolism in Volume 2 and the work on diseases of the stomach in Volume 3. In this volume the discussion on the existence and character of the functional diseases of the stomach is very valuable. The tendency to ignore the functional affections of the stomach has been increased by the brilliant work of the surgeon, but it should not be forgotten that much of this surgical work becomes necessary because disturbances of function have been neglected or misinterpreted. Volume 2 describes the diseases caused by protozoa, including syphilis. A large part is devoted to the consideration of metabolic affections, with an exhaustive review of metabolism in general. Among other topics is considered the question of vegetarianism and it concludes, quoting Taylor, that the land at present under cultivation could not produce enough vegetable albumin to sustain the human race. This argument seems highly fallacious since flesh albumin must also be derived from the land. Gout is discussed by Futcher in an interesting article, and the consideration of diseases of the lungs is important.

GUNSHOT INJURIES: How they are Inflicted. Their Complications and Treatment. By Col. Louis A. Lagarde, U. S. Army Medical Corps (Retired). Prepared under the Direction of the Surgeon-General, United States Army, and Published by Authority of the Secretary of War. Cloth. Price, $4. Pp., 398, with 157 illustrations. New York: William Wood & Co., 1914.

At this particular time a work on gunshot injuries is of special interest. The author takes up not only bullet wounds made by the ordinary rifle but also wounds made by all kinds of modern firearms. The firearms themselves are first described, then the character of the projectiles, and this is followed by a chapter on the theory of ballistics. Characteristic lesions caused by projectiles with their symptoms and complications are considered in a general way, followed by a detailed treatment of the subject of wounds of special organs and regions. Careful discrimination is made when possible between the conditions which prevail during military service and those of civil life when the same might affect in any way the treatment which should be instituted. The experiences of the leading surgeons of the latest wars are drawn on freely to illustrate the points brought out. The author has done considerable original experimental work which contributes not a little to the elucidation of many mooted points. An interesting chapter on the medicolegal phases of gunshot wounds is added, which might have been better had it been a little more complete. Bullet wounds are sufficiently common in civil life to lend much value to the work to the surgeon in times of peace as well as of war.

A HANDBOOK FOR THE POST-MORTEM ROOM. By Alexander G. Gibson, M.D., F.R.C.P., University Demonstrator in Pathology, Oxford. Cloth. Price, $1.50. Pp. 140, with 13 illustrations. New York: Oxford University Press, 1914.

This volume is a pocket-size handbook for the guidance of those unfamiliar with the technic of necropsy procedures. The methods described are based on those of Virchow with suitable modifications. The work is designed to cover the technic of ordinary post-mortem examinations as they occur in general hospitals. Special methods for cases of rare occurrence are not discussed. The author gives suggestions for the arrangement of the room for post-mortem examination, including such details as lighting, ventilation, position of sinks, basins, tables, etc. One chapter is devoted to a discussion of instruments and apparatus. The remaining five chapters describe the routine examination of the body and its organs. With true English thoroughness the author gives detailed directions for certain minutiae of the procedure which some would leave to individual initiative. In directions for removing the intestines we read: "Holding up the lower end with the left hand, by a sawing movement of the knife held with the flat of the blade at right angles to the axis of the bowel, cut gradually through the mesenteric attachment. . . . As it is severed, the bowel should be put into a bowl placed on the table at the left side of the body." Minute directions, however, are appreciated by the beginner, and those who are but rarely called on to make post-mortem examinations will find this a valuable pocket guide.

DIE KÖRPERLICHE ERZIEHUNG DES KINDES. Von Prof. Dr. Hans Spitzy. Paper. Price, 17 marks. Pp. 416, with 194 illustrations. Berlin: Urban and Schwarzenberg, 1914.

In this excellent book the subject of the physical development of the child is discussed from conception to puberty. Such topics as exercise in the first week of life, the correct clothing and shoes at the various ages, the proper posture and gait and the deformities affecting them, and those resulting from improper posture, are discussed at length. The hygiene of the schoolchild and systematic plans for play, work and exercise are carefully considered. The author devotes twenty-four pages with illustrations to a discussion of the various types of seats and desks used in the schoolroom and their effect on the child's development. Although nothing especially new is presented to the reader, nevertheless the subject is so thoroughly covered and the text so amply illustrated that the work will be found valuable not only by the physicians but by teachers and educated parents as well.

Medicolegal

Defense Rights of Member Under By-Laws of Medical Association

(Penhall vs. Minnesota State Medical Association (Minn.), 148 N. W. R. 472)

The Supreme Court of Minnesota reverses a judgment rendered in favor of the defendant association, which was sued for moneys expended by the plaintiff for counsel fees, etc., in defending a malpractice suit the defense of which he claimed the association was obligated under its by-laws to conduct. The court holds that the defendant's officers were mistaken in assuming that its by-laws did not cover claims arising prior to their adoption, for the only exception therein related to causes of action antedating membership in the association, and none other could be implied.

Neither could the by-laws be construed as not imposing any duty or obligation on the defendant's part to defend suits against members, for the purposes of the corporation and the tenor of the by-laws, taken as a whole, led to the opposite conclusion, otherwise the latter would be practically ineffective of beneficial results to members. True, one section, read alone, gave color to the defendant's position, but the other sections must be considered with it, and these unequivocally entitled members to action by the secretary on presentation of the claim, and thereafter to investigation, and, if possible, adjustment by the association, and also, in a proper case, and as expressed in the by-laws, "on conditions" thereinafter specified, "to receive without personal expense therefor," the service and expenses stated. Going down through the by-laws, the conditions referred to were found merely to require presentation of the papers in the litigation to the secretary, and, after performance of certain ministerial duties on his part, the obligation devolved on the defendant's council to investigate the claim made against the member, to adjust it if possible, and, otherwise, to proceed further if it was unjust or the damages demanded were excessive.

The plaintiff, having made due application to the defendant's secretary for assistance, as prescribed in the by-laws, was not required to apply to its council; nor was it necessary for him to give notice of a second action on the same claim after the defendant's refusal to consider his demand with reference to the first, which was dismissed. The defendant having based its refusal of assistance entirely on grounds not involving the merits of the claim against the plaintiff, and the case having been tried and determined solely on such grounds, the question of the burden of pleading and proof on an issue as to whether the character of the claim was such as to entitle the plaintiff to assistance from the defendant was not properly open in this court. Under Section 1 of the defendant's by-laws, entitling members to assistance against malpractice claims on prescribed conditions, and Section 2, making it the duty of the defendant's council to investigate, etc., the burden of pleading and proving that a demand for aid thereunder involved a claim on which the member was not entitled to aid was on the association.

Recognition Refused of License Obtained in Another State To Evade Requirements

(People ex rel. Pisani vs. McKelway et al. (N. Y.), 148 N. Y. Supp. 818)

The Supreme Court of New York, Appellate Division, Fourth Department, affirms an order denying a motion for a writ of mandamus to compel the respondents, constituting the Board of Regents of the University of the State of New York, to indorse a license to practice medicine obtained by the relator in Michigan. The court says that the relator was an Italian, a graduate in medicine of the Royal University of Palermo, Italy. After coming to this country he became, and continued to be, a resident of Buffalo, N. Y. On inquiry as to the requirements for a medical licensing examination in New York state, he found that, by one of the regents' rules, he would be required to take the special subject of second year English, while the state law prescribes that examinations for medical licenses "shall be exclusively in writing and in English." With a knowledge of these facts, and, apparently as charged in an affidavit filed on behalf of the respondents, on finding that he was unable to enter the medical examination conducted in New York state, he applied to the Michigan State Board of Registration in Medicine for admission to the examinations conducted by it, and, having passed the examination, which was taken in Italian and without his being required to take such an examination in English as required in New York state, he was granted a medical license by the Michigan board. A few days later he made application to the respondents for an indorsement of his Michigan license.

Shortly after receiving this application, which had been indorsed by the Michigan board, the relator was notified by the New York officials that his application had been returned to the Michigan board with the request that it withdraw its indorsement of the application on the ground, as stated in the notification: "(1) That you by going to Michigan for the examination have avoided the specific requirement in this state of which you were notified in May, viz., that in order to be admitted to our medical licensing examination you would have to pass the regents' examination in second year English for foreigners; and (2) because you took the examination in Michigan not in English as required by the statute of this state and are not eligible to have your license indorsed." Thereafter the Michigan board complied with this request, and withdrew its indorsement of the relator's application.

The court holds that the relator's attempt to evade the respondents' requirements preliminary to an examination and the further statutory requirement that such examination must be in the English language was a sufficient reason for their refusal to indorse his license in the proper exercise of the discretion given them by the statute. The language of the statute is permissive only, and not obligatory, which provides that applicants with licenses from other state examining boards registered by the regents as maintaining standards not lower than here prescribed may, without further examination, and on submitting such evidence as the regents may require, receive from them an indorsement of their licenses or diplomas conferring all rights and privileges of a regents' license issued after examination.

Nor was the relator entitled to an indorsement of his Michigan license by reason of the reciprocity agreement, so-called, entered into in behalf of the authorized officials of New York state with the official board of Michigan. That authorized the return to the Michigan board of its indorsement for reconsideration, and it, concurring in the propriety thereof, formally withdrew its certification. Acting within the agreement, the respondents properly refused indorsement of the relator's license.

Fright as an Element of Damages

(Goddard vs. Watters (Ga.), 82 S. E. R. 304)

The Court of Appeals of Georgia, in affirming a judgment sustaining a demurrer to a petition in which a woman sought to recover damages for fright alleged to have caused her to miscarry, says that fright may be considered an element of damages where there is physical injury attending the cause of the fright, or, if no physical injury, where the fright is of such a nature as to produce physical or mental impairment directly and naturally resulting from the wrongful act. But to recover damages on account of physical injuries resulting from fright, where there is no actual immediate personal injury, it must appear that the injuries were the natural and proximate result of the fright or shock, and that the defendant could or should have known that the act producing the injuries would with reasonable certainty cause such a result. It must also appear that the injuries resulted from such gross carelessness, coupled with a knowledge of the probable physical results to flow therefrom, as amounted to a wilful and reckless disregard of consequences, or that the fright (with its consequences) was brought about by a deliberate and malicious intention on the part of the defendant to injure the plaintiff. The petition did not state such a case.

Society Proceedings

COMING MEETINGS

Amer. Assn. for Study and Prevention of Inf. Mortal., Boston, Nov. 12.
Amer. Public Health Association, Jacksonville, Fla., Nov. 30-Dec. 5.
Medical Society of Hawaii, Honolulu, Nov. 28-30.
Mississippi Valley Med. Assn., Cincinnati, Oct. 27-29.
Southern Medical Association, Richmond, Nov. 9-11.
Southern Surgical and Gynecological Assn., Asheville, N. C., Dec. 15-17.
Virginia Medical Society, Washington, D. C., Oct. 27-30.
Western Surgical Association, Denver, Dec. 18-19.

INDIANA STATE MEDICAL SOCIETY

Annual Meeting held at Lafayette, Sept. 24-25, 1914

The President, DR. JAMES P. SALB, Jasper, in the Chair

Surgical Treatment of Goiter

DR. GEORGE K. THROCKMORTON, Lafayette: In selecting cases for operation, we must first consider the benefit to be derived from operation; also the danger of operation. If we have symptoms of goiter, but no hyperplasia or exophthalmos, we should not operate, for the patient will not receive benefit. In this case we must look to some other ductless gland as the causative factor. The mortality following operation for hyperthyroidism has been very greatly reduced, owing more to the better preparation of patients, time, type, and extent of operation which can be performed in several stages, than to any details of improved technic. The majority of goiter patients can safely undergo thyroidectomy at the time they are seen by the surgeon. Extreme conditions may require medical preparation. In cases of excessive activity we should wait for the symptoms to subside, using medical treatment, giving special attention to the heart, nervous system, intestines and kidneys, as the symptoms may require.

DR. H. H. MARTIN, M.D., Laporte: Every goiter should be operated on after medical treatment has failed, or, as is often the case, after making it actually worse. One great advantage in operating under local anesthesia is the ability of the patient to phonate. When one is operating in the region of the recurrent laryngeal nerve, and its location cannot be definitely determined, the ability on the part of the patient to articulate aids as a safeguard. In cases of mild hyperplasia, producing mild symptoms of hyperthyroidism, the patients will usually recover with rest and proper hygienic treatment. Patients who cannot, by rest and hygienic treatment, be rendered fair surgical risks, should be dismissed rather than allowed to jeopardize the standing of the necessary surgical procedure. Some cases of large goiters can be made more favorable risks by ligating the superior thyroid artery.

DISCUSSION

DR. CHARLES STOLTZ, South Bend: Goiter, toxic and nontoxic, is largely a surgical proposition. Absolute rest in bed is the best preparation for operation. The rational procedure is to do the operation by slow stages, tying off part of the blood-stream, then later a little more, then removing part of the gland, and later, if necessary, removing more.

DR. THOMAS JONES, Anderson: The boundary line between the medical and surgical aspect is hard to follow. The Mayos report 95 to 96 per cent. of cures, but surgery must be resorted to early, if at all.

DR. D. N. EISENDRATH, Chicago: It is important to diagnose the presence of a persistent thymus, either by percussion or by fluoroscopic examination. Treatment should include the removal of the thymus.

DR. MILES F. PORTER, Fort Wayne: Rest in bed is not so much a remedy for the cure of thyrotoxicosis, as it is a help toward making a correct diagnosis and an estimate of the correct line of treatment. Toxic symptoms after surgical interference may be prevented very largely by the delicate handling of the gland during its removal, by shutting off all the circulation in the early stage of the operation, and by using boiling water, or Harrington's solution, as an application over the raw surface from which the gland has been removed. Postoperative intoxication rarely occurs in the hands of experienced operators.

DR. J. RILUS EASTMAN, Indianapolis: I favor a general rather than a local anesthetic for this operation.

DR. ALBERT E. STERNE, Indianapolis: I, too, favor a general anesthetic. If a patient does not improve in a couple of weeks under enforced rest and quiet, with the use of ice bags, and with as little medication as possible, he is not a good surgical risk; if he does improve, delay the operation, seeking to convert a poor surgical risk into a good one.

DR. A. C. KIMBERLIN, Indianapolis: The resemblance of this condition to incipient tuberculosis, the grosser intestinal manifestations, occupational neuroses, etc., makes early diagnosis difficult. Rest in bed is very good, if the mind as well as the body is at rest.

DR. H. O. PANTZER, Indianapolis: Thorough elimination is very important.

Position of Normal Stomach

DR. BURTON D. MYERS, Bloomington: Forty young adults, from 19 to 26 years of age, twenty-eight men and twelve young women, were given a buttermilk-barium sulphate meal, and their stomachs then examined fluoroscopically. In males, when standing, the average position of the lower border of the stomach was found to be 1 inch below the umbilicus, the extremes being from 1 inch above to 3 inches below this plane. In females, when standing, the lower border of the stomach was found to be 3 inches below the umbilical plane, the extremes being 1⅜ to 4½ inches below the umbilical plane.

DISCUSSION

DR. A. M. COLE, Indianapolis: Position is not so important as function. With fluoroscopic study we have a much better way of arriving at the question of whether or not we have impaired function. Very few patients need surgical treatment. Put them to bed, give forced feeding and massage; build up their weight, and a great majority of these patients after they have taken on from 15 to 20 pounds will get up and their gastric symptoms will have disappeared.

DR. ALBERT E. STERNE, Indianapolis: We cannot treat these cases in a routine way. If the motor force of the organ is good, the question of position is of comparatively little value, provided the position of the organ does not create any mechanical interference with the neighboring organs.

Early Recognition of Cancer of the Uterus

DR. BERNAYS KENNEDY, Indianapolis: Early diagnosis is the real and practical hope for the cure of cancer. Direct examination of organs is important—no matter what other diagnostic measures are used. An educated medical profession is necessary for the eradication of cancer, and also an educated and interested public. The belief that cancer is not curable by operation is not based on facts. It is the duty of the physician to overcome such prejudice. It is fatal to the patient to wait for physical changes to take place. Better run the risk of an error in diagnosis than to put off an operation until all possibility of removing the cancerous growth has passed.

DISCUSSION

DR. T. W. KELSEY, Attica: Educate the women and the general practitioners to realize their responsibility in this matter, because it is to the general practitioners that the women go first for advice as to these conditions.

DR. ALBERT E. STERNE, Indianapolis: The women who are afraid of cancer, who run to the doctor if they have a "lump" anywhere, practically never develop cancer, because the doctor has found from repeated examinations whether or not a change has occurred, and they have been operated on early, on suspicion. Cancers are cured before they are cancers, clinically, when operation is performed on suspicion. After certainty is established the question of the outcome in any operation is a debatable one. The Abderhalden test is a distinct aid in the treatment of cancer. Though quite as simple as the Wassermann test, it is more open to error, and must be done with nicety and precision.

Abderhalden Test in Pregnancy

DR. JANE KETCHAM, Indianapolis: It is possible to diagnose pregnancy in the obese; it will differentiate the menopause from pregnancy; it will disclose an abdominal tumor and accurately diagnose ectopic gestation from tumors of the adnexa; it will disclose a recent abortion. If the test is positive, it does not establish the diagnosis of pregnancy; but if the test is negative, it may be taken as final that there is no living conception present.

Nitrous Oxid Anesthesia in Obstetrics

DR. ARTHUR F. GUEDEL, Indianapolis: Labor is retarded very little, if at all, as the anesthetic does not produce muscular relaxation beyond that of normal sleep. Therefore, there is no predisposition to post-partum hemorrhage, involution is not delayed, the channels are closed as they should be, and pathogenic bacteria, if present in the birth canal, are not liable to gain entrance into the blood-stream. Its action is rapid and transitory, it is not irritating or unpleasant to inhale; and is less productive of nausea and vomiting.

DISCUSSION

DR. L. PARK DRAYER, Fort Wayne: I do not believe that the Abderhalden test is positive enough as a test of pregnancy.

DR. B. W. RHAMY, Fort Wayne: The greatest objection to the Abderhalden test is that it requires an infinite amount of painstaking care and attention to details, and is reliable only in the hands of an experienced laboratory worker.

DR. W. D. HOSKINS, Indianapolis: My experience in the use of nitrous oxid in obstetrics has been very favorable. It gives relief from pain and accelerates labor without any disastrous results.

Treatment of Cerebrospinal Fever

DR. W. D. HOSKINS, Indianapolis: Antimeningococcus serum is the only reliable treatment, and its efficiency depends largely on the manner in which it is used. The serum should be administered by the gravity method, through the needle used to make the puncture. The dose should be from 30 to 45 c.c. for an adult, and from 15 to 30 c.c. for children. It should be warmed to body temperature and injected slowly. It should be repeated in twenty-four hours, and whether improvement does or does not follow, the serum should be repeated daily for three or four days, then every third or fourth day until all danger of relapse has passed.

DISCUSSION

DR. L. PARK DRAYER, Fort Wayne: I wish to emphasize the importance of early diagnosis by lumbar puncture. Lumbar puncture is also a splendid adjunct in treatment, because it relieves the pressure. If you use serums, change your make frequently—switch your serum after a certain period of time and introduce a new family. We must not say that a cure has been effected after so many doses; we are not sure until the spinal fluid remains meningococcus free.

DR. ALBERT E. STERNE, Indianapolis: Since we have been employing serums of various types, we do not see the damaging sequelae to the nervous system that we used to before the days of serum. It is my habit to make lumbar puncture, even if I have no serum, because it affords relief for the patient.

Specialism: Route to the Hypophysis Cerebri

DR. JOSEPH C. BECK, Chicago: Specialism has made great strides in medicine. The general practitioner of former years is practically impossible in large communities, and possible only in sparingly populated districts. The general surgeon is also being rapidly subsidized into the various surgical branches. Ophthalmology and otolaryngology cannot be considered complete without taking into account the management of the structures within the mouth, the face, neck and brain. Men practicing the above-mentioned specialties are really head and neck specialists, and, while not expected to be expert in the entire domain of head and neck surgery, should at least be prepared to recognize the conditions which are intimately associated with diseases of the eye, ear, nose and throat. The best route to the hypophyseal gland is by way of the nose. The incision is made above the gingival margin, above the second central incisor, and carried externally to the first molar. The anterior surface of the superior maxilla is exposed in the same manner as when opening the antrum. The tissues as far as the inferior orbital margin and laterally to the zygomatic fossa are all elevated. The entire anterior surface of the antrum is exposed. Then, by means of an electric burr or biting forceps the entire anterior surface of the superior maxilla is taken off. The middle turbinal is then removed. After this the posterior ethmoidal region through the antrum is opened and the posterior ethmoidal cells curetted. The packing, which was inserted into the nose, is then removed and a probe inserted into the sphenoid sinus as a guide. The anterior wall of the sphenoid is then removed in the usual manner by curets and punches. The septum between the two sphenoid sinuses should also be removed. By means of Hirsh's beveled chisel, three incisions are made into the floor of the sella turcica and this little piece of bone lifted off by the same chisels, and removed by breaking it off from its attachment. By means of two Hirsh's angular spatulas, small particles of the thinned-out floor of the sella turcica are removed and the opening further enlarged by sphenoid punches. The dura is now incised with Hirsh's bistoury, and any desired incision made to enlarge the opening by the same instrument. If the growth is a cyst, then it will probably terminate the operative procedure; but if it be a tumor then the same or part of it is removed by punches and curets. A cigaret drain is placed into the sella turcica and led through the antrum. The remaining portion of the incision in the mouth is closed by two or three stitches.

DISCUSSION

DR. E. DEWOLFE WALES, Indianapolis: There is not enough team-play between the specialist and general practitioner. It is very essential for us to know the symptoms of hyperthyroidism, so that we may recognize the infiltration which often takes place in the tonsil, turbinates and adenoid tissue. I have had good success in referring cases of tuberculosis of the glands of the neck to roentgenologists. These patients have all recovered with Roentgen treatment without any further operative measures.

DR. J. F. BARNHILL, Indianapolis: Those who know intimately the anatomy of the part and the cause of the disease ought to follow it to its termination, and do such surgery as should be done. There was a time when the specialist was looked on as a man who dealt with and treated the two cavities in the nose, the larynx and the drum cavity. Very little was said about the mastoid, and also very little about sinus disease. Conditions are different now.

DR. L. D. BROSE, Evansville: Tracheotomy is often needed as a preliminary operation in these cases of goiter, and can be done very easily under local anesthesia.

DR. J. R. NEWCOMB, Indianapolis: Some men believe that brain surgery should be done by the oculist. It may be all right in a large city, but I very much doubt the advisability of an eye surgeon in a small town undertaking an operation on the brain because he finds choked disk, any more than I would expect him to undertake the operative treatment of a case of nephritis on account of the retinal condition.

DR. JOSEPH C. BECK, Chicago: If a man is an ophthalmologist, and at the same time has surgical training in brain surgery, or head and neck surgery, and makes the diagnosis from the fundus findings of an abscess or brain tumor, he could operate. If he is simply a diagnostician of the fundi, he is not the one to operate. The treatment of tuberculosis of the glands of the neck by the Roentgen ray has been a disappointment to me. The patients come back for further treatment because the focus has not been thoroughly removed.

Some Ocular Tumors and Their Lessons

DR. F. C. HEATH, Indianapolis: Different observers have reported varying percentages of recurrence in sarcoma of the choroid, the highest being nearly 60 per cent. One-third are local and general, two-thirds metastatic. After three years these growths seldom return, although one has been noted as late as eleven years. Timely and thorough operation is of great advantage. Is it not possible that the prog-

nosis after such operations may be more favorable than is sometimes supposed?

DISCUSSION

DR. T. C. HOOD, Indianapolis: Tumors of the eyeball are not of unusual occurrence. Fortunately, the globe is so placed that it is more open to palpation and inspection than many other organs of the body; therefore, the early diagnosis of new growths in and about the eyeball presents little difficulty. Their early removal is the only means of conserving sight and often, as in the case of malignant growths, of saving life. The difficulty about these cases is that we do not always see them in the early stages.

DR. ALBERT E. BULSON, JR., Fort Wayne: A very guarded prognosis should be given in these cases, not only as regards recurrence, but also as concerns metastases. I have seen quite a large number of cases of intra-ocular sarcoma during the past few years, the majority of which have been melanotic sarcoma of the choroid, and every one of the patients is dead now. The majority died within eighteen months. Although I enucleated the eye, eight or nine of these cases had recurrence in the orbit; many had metastases in the liver. Regarding glioma, there are a few cases on record in which the patients have lived, but they are very few and far between. I also wish to emphasize the necessity of giving these patients the advantage of operative measures, and of having a Wassermann test made in these cases, because frequently, a tumor will disappear under the influence of salvarsan plus mercury and potassium iodid.

DR. L. D. BROSE, Evansville: My experience coincides with Dr. Bulson's regarding glioma. I have had two patients; both died. My experience with sarcoma has been a little more hopeful than his, however.

DR. F. C. HEATH, Indianapolis: I do not wish to convey the idea that prognosis is not grave in these cases. Of course it is—not only in the growth in the orbit, but also from metastases. The point which I wished to bring out was that the grave side has possibly been overemphasized, and we have been in the habit of looking on these cases as hopeless. I have seen only two cases of glioma. One of these patients had a recurrence, followed by death in a very short time after operation; the other was living a number of years after operation.

Nasal Polypi

DR. GEORGE F. SPOHN, Elkhart: Nasal polypi are the results of a chronic morbid state of the mucous membrane. A large percentage of polypoid patients have been mouth-breathers from childhood. In connection with the necessary surgery, the ideal local treatment is the one that keeps the nares clean all the time. My results with autogenous and stock vaccines have not been satisfactory. Some patients do not seem to improve on any treatment. They merely hold their own. Many of these patients have chronic anemia, which has been relieved by large doses of arsenic. I believe arsenic will yield results in these obstinate cases; but it must be given in large doses, intravenously or hypodermatically.

DISCUSSION

DR. W. S. TOMLIN, Indianapolis: There is usually lack of drainage and ventilation in the nasal cavity in these cases, which has caused a sinusitis, resulting in polypi formation. Nothing very much can be done in these cases until the poor ventilation and drainage have been remedied. My experience with vaccines has been to some extent satisfactory, but their value is in direct proportion to the thoroughness with which I have previously operated.

DR. J. D. HEITGER, Bedford: One of the important things in this connection is the humidity of the air we breathe. In our homes it is about 50. In winter the outdoor air has a humidity of between 20 and 30 degrees. This continued series of traumatic shocks to the nasal mucous membrane has a very damaging effect, particularly when there is any obstruction to proper breathing.

DR. D. W. STEVENSON, Richmond: The system of air-washers in some of our public schools is very good. By this method the humidity is increased. I have found the use of vaccines of great help.

(To be continued)

KENTUCKY STATE MEDICAL ASSOCIATION

Sixty-Fourth Annual Meeting, held at Newport, Sept. 23-25, 1914

(Concluded from page 1418)

Treatment of the Most Frequent Deformities Following Infantile Paralysis.

DR. W. BARNETT OWEN, Louisville: If a child with paralysis of the peroneal group of muscles—the internal group being normal—is allowed to go without protection or support, the healthy muscles rapidly develop and contract, thus forcing the foot into a varus position, because there is no resistance from the paralyzed muscles. The smaller bones of the ankle and foot develop in an abnormal attitude, thereby markedly changing the osseous relationship. If the limb is properly supported, deformity is prevented from progressing, and even if later it becomes necessary (which it most likely will) to practice tendon transplantation, the bones are normal as to size and relationship. It is then only a question of the proper support being transferred from braces to healthy transplanted muscles, or power restored by whatever other operation may be selected as most suitable. Muscles completely paralyzed from infantile paralysis always remain so. Partially affected muscles, however, can be developed greatly by scientific active motion supervised by one who is thoroughly familiar with the conditions. When the parents are advised to "simply let the child run for a while and develop the paralyzed muscles," it means that those completely paralyzed are not benefited, and those partially affected may be overtaxed, thereby losing much strength which could be retained and developed.

Diagnosis of Paralyses in Childhood

DR. JOHN J. MOREN, Louisville: In recognizing paralysis from infrequent lesions like tumor, hydrocephalus and cerebellar lesions, the symptoms are not always characteristic; they are slow in developing and in many instances one is never satisfied with one's opinion. Some of these conditions remain quiescent or only manifested by occasional epileptic seizures or slight mental deficiency and ultimately present a picture which is cerebral in origin, but one will be unable to classify it as any particular disease. As for the value of localizing cerebral symptoms, my experience has been unfortunate and leads me to the conclusion that none is reliable, and even when one groups them together they are often misleading. I have had children referred to me for nervousness and weak eyes, and from lack of symptoms treat them for such, when really they are suffering from a beginning brain tumor or hydrocephalus.

DISCUSSION ON PAPERS OF DRS. OWEN AND MOREN

DR. CURRAN POPE, Louisville: These cases should be turned over to us not for diagnosis but for study. A man cannot in an hour go over a case and make a diagnosis.

DR. MILTON BOARD, Louisville: I wish to emphasize the importance of long and continued study of all cases involving the central nervous system or the cord.

DR. PHILLIP BARBOUR, Louisville: I have been called in consultation to see children in whom a diagnosis of paralysis had been made, when there was no real paralysis. There was inability to move on account of pain, seemingly. It is not easy to say whether the child can not or does not move because it hurts him. I saw recently a case of pseudo-paralysis in which there was inability of the child to move its legs from the pain of ascaris. This child was fed on pasteurized milk and the physician in charge denied the child used pasteurized milk. Following the history we traced it to pasteurized milk first which was the cause of the scurvy condition, and it was rickets which was the cause of so much pain to the child.

DR. A. C. L. PERCEFULL, Louisville: More stress should be laid on the prevention of these deformities rather than the correction of them. The general practitioner allows these patients to run around, neglects them because they can get around fairly well, and are apparently in good health after the acute stage of the infantile paralysis has been passed. If we will send these children to the orthopedist early we will not have to do so many operations to correct deformities.

Tumor Formation in Plant and Animal Life; Its Relation to Frequency of Cancer in Man

Dr. A. David Willmoth, Louisville: All malignant growths possess the following history before operation: (1) The time during which the presence of the growth does not attract the attention of the host. (2) The time consumed by patient in waiting before seeking medical advice. (3) The time consumed by the physician in making a diagnosis. Nothing can be done to shorten the first stage, except education of the public so that regular and frequent examinations can be made and cancers detected early. To shorten the second stage, the public must be educated to the fact that all tumors are curable, that the possibilities and probabilities of a cure are in direct proportion to the promptness and manner of treatment. Everyone must know the potential dangers of delay, that a wart on the lip may and does often take on malignancy in a short time. When a woman subjects herself to an immediate operation on discovery of a tumor in her breast, her chances of cure are 85 per cent., with a possible 100 per cent. After the growth has developed to a point at which diagnosis is easy, her best chances of a cure are only 64 per cent. in the adenocarcinoma, and if the growth is a more malignant form, only 33 per cent. To shorten the third stage, the surgeon must fit himself for the task. The remedy lies in every surgical clinic giving daily instructions in diagnosis, teaching living pathology. It must have a pathologic laboratory in which every case is determined positively, no guessing to be made. In Kentucky with a health board active, sending out bulletins regularly to thousands, let them devote a liberal share of space to the cancer problem. Let each physician become a missionary among his own people. Ask the pulpit for an hour four times a year devoted to public health work. Illustrate your talks, if possible, by lantern slides. Get the various women's clubs to take the matter up and help to make a world-wide crusade.

Obscure Rheumatism in Childhood

Dr. S. P. Garrison, Bellevue: The physician, when dealing with cases of chorea, should always be on the lookout for other symptoms of rheumatism. The rheumatic toxin seems to exert its influence on the unstable nervous system of the child rather early. One of the first symptoms may be simply an unusual irritability of the child; then it becomes nervous, easily frightened, jerking and starting in its sleep, and if not treated, contraction of the voluntary muscles occurs, and other symptoms of chorea or rheumatism soon follow.

Use of Autogenous Vaccines

Dr. John D. Allen, Louisville: The field in which the most satisfactory results are obtained is the genito-urinary tract. Out of forty-eight cases of acute and chronic pyelitis and cystitis, forty-one made complete recoveries. Thirty-five of these infections were due to the colon bacillus, two to the *Bacillus pyocyaneus*. The others were mixed infections, due to the colon bacillus and *Staphylococcus aureus*, and in addition two of the cases of cystitis showed the gonococcus. Those cases which showed no improvement later proved to be mechanical conditions with secondary infections. Seventy-five cases of chronic gonorrhea which showed the gonococcus, the *Staphylococcus albus* and a diphtheroid bacillus showed improvement and the majority made a complete recovery. Fifteen cases of gonorrhea, which showed only the *Staphylococcus albus* and a diphtheroid bacillus, recovered nicely. The improvement in this type of cases is usually slow. An interesting case was referred for blood examination with instructions to look especially for malarial parasites. The patient gave the following history: Age, 43; was having what he termed, "dumb chills," headaches, nervous, aching in his joints and muscles, generally indisposed, with slight temperature at times. These symptoms had continued intermittently for a period of over two years and he had been treated by several different physicians for malaria. The blood examination showed no parasites, but a leucocytosis of 13,500. Further examination revealed an infected prostate from which a streptococcus was isolated. A vaccine was prepared, and after six doses, all of his symptoms disappeared. The most spectacular results which I have seen from the use of autogenous vaccines have been in tuberculosis of the genito-urinary tract, with mixed infections. The bacteria isolated were the colon bacillus, streptococcus and *bacillus pyocyaneus*. Out of seven cases treated, six showed a tuberculous infection of both kidneys, bladder and testicles. One showed infection of kidneys only. The improvement in all was immediate.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

October, VIII, No. 4, pp. 257-320

1 Blood-Pressure in Normal Children. C. F. Judson, Philadelphia, and P. Nicholson, Ardmore, Pa.
2 Blood-Pressure in Anemia in Infancy. J. L. Morse and E. T. Wyman, Boston.
3 *Voice Sign in Chorea. W. B. Swift, Boston.
4 *Diagnosis and Treatment of "Late" Hereditary Syphilis. B. S. Veeder and P. C. Jeans, St. Louis.
5 *One Hundred and Forty-One Cases of Recurrent Vomiting. C. G. Kerley, New York.
6 Myatonia Congenita of Oppenheim. A. Strauch, Chicago.
7 Refractory or So-Called "Fast" Cases of Meningococcus Meningitis. H. Heiman, New York.

3. **Voice Sign in Chorea.**—The following conclusions are drawn by Swift from a study of twenty cases: 1. These choreic voice changes are more frequent in the vowels, less so in whisper, whistle, consonants, air blow and holding of breath; and are less and less in frequence in this order. 2. There is sufficient uniformity and frequency in the appearance of vocal changes to warrant us in classifying changes of pitch and intensity as one of the signs of chorea; of equal dignity with the choreic knee-jerk of Shaw, the respiratory signs of Graves and other minor symptoms. 3. Other less frequent and less marked changes occur that seem of interest subordinate to those in the vowels. 4. The most marked change occurred in the open prolonged sound of "a" as in "are," and Swift therefore offers this as the routine clinical test and method for the elicitation of the voice sign in chorea.

4. **Diagnosis and Treatment of Hereditary Syphilis.**—Veeder and Jeans found the incidence of manifest hereditary lues of the "late" type much greater in proportion to the incidence of "early" syphilis than previous figures would indicate. The largest group of cases (43 per cent.) exhibited lesions of the central nervous system, but the authors call attention to a group of cases with lesions associated as "rheumatic"—chorea, acute arthritis, torticollis, myalgia. By Wassermann reactions and the "therapeutic test" they have found that such lesions are not infrequently due to an hereditary syphilitic infection.

It has been their experience that acutely developing lesions respond promptly to intravenous injections of neosalvarsan, but that in order to obtain any permanent results and prevent the recurrence of symptoms an intensive and long continued mercurial treatment must be given in addition. The syphilitic infection—as measured by the Wassermann reaction—is most persistent, and although an intensive and uninterrupted antisyphilitic treatment has been given for nearly two years Veeder and Jeans have not been able to obtain a negative Wassermann reaction in some of their cases. Moreover, the Wassermann reaction has usually returned when treatment has been interrupted in those cases in which it has become negative as the result of treatment. They do not feel that it has been demonstrated as yet that an hereditary syphilitic infection of the "late" type can be eradicated.

5. **Cases of Recurrent Vomiting.**—Recurrent vomiting, in a vast majority of the cases, Kerley found occurs in the offspring of those who for two or more generations have not been occupied with manual work. The recurrent vomiting patients are the offspring of those who have had business or

professional occupations. **Management during the interval.** Diet: If the case is a pronounced one, the patient is given a diet with few restrictions, except that cow's milk, butter, cream and sugar are omitted.

Medication: The further treatment consists in the internal use of salicylate of soda, bicarbonate of soda, independent or in combination as advocated by Rachford. In a pronounced case Kerley gives 5 grains of sodium salicylate with 10 grains of sodium bicarbonate three times daily at five-day intervals, or 20 to 30 grains of the sodium bicarbonate daily for a month or two at first. This drug treatment is carried on with rest periods for months and years as the case may require.

Bodily Exercise: A very important factor in the management is in arranging daily physical exercise, such as riding horseback or the bicycle and walking so many street blocks a day. A warm bath and a brisk rub are given at night, and last but not the least important feature in the treatment is the use of physical therapeutics. In severe cases Kerley uses, if possible, daily massage together with various body manipulations and exercises, the latter sufficient to make the child perspire, but not to the point of exhaustion.

A daily evacuation of the bowels is insured by suitable measures. Some children are taken out of school. For others Kerley advises a modified rest-cure. Management during the acute vomiting attack. In the vast majority of the cases, a weak solution of sodium bicarbonate is best retained in the strength of 5 grains of the bicarbonate to 8 ounces hot water. This is given freely.

As laxatives the magnesia preparations are best retained and are used when a laxative is required. Calomel or mercury with chalk will often increase the vomiting. In other cases their use supplies very material assistance. When the vomiting has continued for twenty-four to thirty-six hours the patient is given colonic flushings with sodium bicarbonate, 2 drams to 8 ounces of water at eight-hour intervals. The solution is best retained if it is given warm (105 F.), the tube inserted from 8 to 12 inches.

Feeding: Nothing is gained by attempts at forcing the feeding. When the child is ready for food, he is given barley or rice gruel with dried bread crusts or unsweetened zweiback.

Judging from the results obtained through the withdrawal of highly energized foods and in the use of active and passive exercises it would seem that the chief error in most cases rests in a defective oxidation, or in the giving of food substances of high carbon content in excess beyond the powers of normal oxidation.

American Journal of Physiology, Baltimore

September, XXXV, No. 2, pp. 151-264

8 *Effect of Vagus Stimulation on Blood-Flow Through Kidney after Section of Corresponding Splanchnic Nerve. R. G. Pearce, Cleveland.

9 Reversibility of Geotropism of Arenicola Larvae by Salts. S. Kanda, Woods Hole, Mass.

10 *Functional Variations in Contractions of Different Parts of Small Intestine. W. C. Alvarez, Boston.

11 *Influence of Pituitrin on Respiration. L. B. Nice, J. L. Rock and R. O. Courtright, Norman, Okla.

12 Influence of Temperature on Rate of Heart Beat in Amblystoma Embryos. H. Laurens, New Haven, Conn.

13 *Body Temperature and Pulse-Rate in Man after Muscular Exercise. E. G. Martin, C. M. Gruber and T. H. Lanman, Boston.

14 *Effect of Roentgen Rays on Action of Certain Enzymes. A. Richards, Galveston, Tex.

15 *Toxicity of Sodium Tartrate. W. Salant and C. S. Smith, Washington, D. C.

8. **Blood-Flow in Kidney.**—Since it was thought possible that the increase in urine formation found by Asher and R. G. Pearce to follow stimulation of the vagus nerve after section of the splanchnic nerve might be due to an increased rate of blood-flow through the renal vessels, the present investigation was undertaken by Pearce. It is shown by experiments on dogs under the same conditions as those present in the experiments referred to, that no vasodilatation occurs. These observations were made partly by oncometric measurements, and partly by actual measurements of the blood from the renal vein.

10. **Variations in Contractions of Small Intestine.**—Segments of the rabbit's small intestine, beating in warm oxygenated Ringer's solution were seen by Alvarez to have about 50 per cent. more rapid rhythm when taken from the duodenum than when taken from the lower ileum. Roughly expressed, the rate varies inversely as the distance from the pylorus. These differences in rate observed in isolated segments have been found true also of the two ends of the small intestine as seen in an animal opened under warm salt solution. The oral end of an intestinal loop beats with more regular rhythm and amplitude than the aboral end. The upper end of a loop, or a segment from the upper intestine, is less affected by epinephrin and recovers more rapidly from the inhibitory influence than a lower region. The amplitude of contraction of segments with approximately the same length is greater with segments from the ileum than with those from the duodenum. The rhythm of a segment of the terminal ileum seems to be determined by the rapid rhythm of the sacculus rotundus, for when the two are separated, the segment from the ileum beats at a slower rate. The more rapid rhythm and the smaller amplitude of duodenal segments are apparently associated with a greater tone of this region compared with the lower ileum. The duodenal region is more irritable to mechanic and thermal stimulation than lower parts of the small intestine. It is suggested that the greater tone and irritability and the faster rhythm of the upper part of the small intestine are associated with more rapid peristalsis in this region.

11. **Influence of Pituitrin on Respiration.**—The characteristic effect of pituitary extract on respiration, according to the authors, is an increase in the depth, followed by a shallowness and a decrease in the rate. In some cases, however, the increase in the depth of respiration is followed by shallowness and an increase in the rate. The effect of pituitrin on the respiratory mechanism occurs synchronously with that on the circulatory system. The effect, however, on respiration passes off sooner than that on circulation. After a few injections of pituitrin, the respiratory mechanism becomes immune and the characteristic responses are not elicited.

13. **Temperature and Pulse in Man After Exercise.**—Careful comparisons made by the authors of axillary temperature and pulse-rate after muscular exercise in trained and untrained men fail to show the degree of parallelism to be expected, if Mansfeld is correct in his view that the persistent cardio-acceleration following exercise is the result of heightened blood-temperature. The conclusion is drawn that some other explanation must be sought for the phenomenon.

14. **Action of Roentgen Rays on Enzymes.**—The experiments described by Richards demonstrate that, at least for the digestion of egg-albumin by pepsin and of starch by diastase, a short radiation with Roentgen rays has the effect of accelerating the enzymotic activity, while a longer radiation inhibits it. Between these two strengths lies a point at which the radiation is non-effective. Although the accelerative or inhibitive effects may, perhaps, be slight, they are, nevertheless, definite.

15. **Toxicity of Sodium Tartrate.**—Salant and Smith claim that sodium tartrate may produce acute and subacute intoxication. In frogs, acute intoxication was observed in most cases. In the domestic fowl, sodium tartrate produced acute effects only: (a) Acute effects in rabbits were produced when sodium tartrate was given by mouth or when it was injected intravenously. (b) Subacute intoxication was produced by intravenous and by subcutaneous injections, much smaller doses being required. (c) Symptoms of injury to the kidney alone was produced with small doses. (d) With larger doses renal injury was more marked and symptoms of muscular and nervous symptoms were present. Renal injury and symptoms of muscular and nervous disturbances were observed in the cat. Carrot-fed rabbits were much more resistant than those which were fed oats and cabbage. Young rabbits on a carrot diet are more resistant than those fed on a milk diet. Resistance seems to decrease with age. The toxicity of dextro and levo tartrates was found to be the same.

Bulletin of Johns Hopkins Hospital, Baltimore

October, XXV, No. 284, pp. 287-322

16 *Experimental Observations on Adrenals with Reference to Functions of Their Interrenal Portions. S. J. Crowe and G. B. Wislocki, Baltimore.
17 Primary Carcinoma of Fallopian Tube. C. W. Vest, Baltimore.
18 *Normal Differential Leukocyte Count. S. R. Miller, Baltimore.

16. **Adrenals with Functions of Their Interrenal Portions.**—Crowe and Wislocki sum up their extensive as well as intensive experimental work as follows: In the dog the adrenals are vital organs, and it is probably the cortex rather than the medullary portion which is essential to life. After a partial extirpation of the adrenal, the remaining portion undergoes hypertrophic changes. The increase in size is due to a multiplication and enlargement of the cells of the cortex, chiefly in the fascicular zone; the medulla shows no hypertrophic changes, either grossly or microscopically. A chronic infection in an animal with an adrenal insufficiency is occasionally associated with an interstitial fibrosis and destruction of the cells of the fascicular zone of the cortex. An acute general infection in an animal with an adrenal insufficiency produces in some instances focal areas of complete cell destruction (without hemorrhage) in the fascicular zone of the cortex of the remaining portion of the adrenal. In no instance have the authors seen hemorrhages or injury to the cells of the medulla of the adrenal resulting from an acute or chronic infection in the dog.

After an "almost total" removal of both adrenals, the animals often have general convulsive seizures, a subnormal temperature and other symptoms of an acute adrenal insufficiency; in some instances, recovery gradually ensues after such symptoms and the animal subsequently develops in a normal manner as regards growth and sexual functions. There is also no change in disposition. They increase in weight, but not to an abnormal extent. No polyuria has been found.

There is no permanent raising or lowering of the carbohydrate tolerance resulting from an adrenal insufficiency. A transient glycosuria follows the operative manipulation of either the right or the left adrenal. An autoplastic transplantation of a fragment of adrenal may "take," but is of no functional value. When a fragment of adrenal containing both cortex and medulla is transplanted, the cortical cells may survive, but the medullary cells are absorbed. There seems to be a definite relationship between the adrenals and the lymphatic system. The most striking feature at autopsy on an animal with a long-standing adrenal insufficiency is the enlargement of the mesenteric and retroperitoneal lymph-glands and the solitary lymph follicles in the walls of the intestine. Not infrequently there is also an hyperplasia of the thymus. Further observations are being made by the authors to confirm these findings.

18. **Normal Differential Leukocyte Count.**—The total leukocyte count and differential formula in normal individuals Miller found are subject to relatively wide variations, which must be considered in the interpretation of studies made on the bloods of individuals presumably suffering from abnormal conditions. He says that the interpretation of any differential count should be based on: (a) A knowledge of that particular individual's normal blood-picture, when possible. (b) The average values for the locality in which that individual resides. (c) A consideration of those factors peculiar to the individual which might modify that particular blood. Differential leukocyte counts should always be reported in terms both of percentage and absolute numbers per cubic millimeter, and in all cases, in which possibly more than one differential count should be made, especially in borderline cases in which slight changes are to be regarded as of diagnostic or prognostic value. The tendency to ascribe a diagnostic value to lymphocytosis Miller thinks is probably overdone. Only when the mononuclear elements constantly exceed the average percentage, absolute values and upper limits of variation (35 to 40 per cent.) for the community and when all modifying factors are considered, should one attempt to draw valuable conclusions from the figures obtained.

Journal of Infectious Diseases, Chicago

September, XV, No. 2, pp. 245-416

19 *Tuberculocidal Action of Certain Chemical Disinfectants. L. M. DeWitt and H. Sherman, Chicago.
20 Standardization of Antihog-Cholera Serum. T. P. Haslam and O. M. Franklin, Manhattan, Kan.
21 Biometrical Study of Mucosus Capsulatus Group. J. G. Fitzgerald, Toronto.
22 *Formation of Antibodies in Rats Fed on Pure Vegetable Proteins (Osborne-Mendel Stunting Food). L. Hektoen, Chicago.
23 *Bacteriology of Vaginitis. W. B. Sharp, Chicago.
24 Relative Longevity of Different Streptococci and Possible Errors in Isolation and Differentiation of Streptococci. W. L. Holman, Pittsburgh.
25 *Growth of Gonococcus and Staphylococcus Albus from Urethra in Plate Culture. E. G. Crabtree, Boston.
26 Structural Transformations of Blood-Cells of Vertebrates. G. L. Kite, Philadelphia.
27 *Infection of Man with Bacterium Tularense. W. B. Wherry and B. H. Lamb, Cincinnati.
28 Etiology of Dengue. Attempt to Produce Disease in Rhesus Monkey by Inoculation of Defibrinated Blood. C. H. Lavinder and E. Francis, Washington, D. C.
29 Bacillus Abortivus Equinus as an Etiologic Factor in Infectious Arthritis of Colts. E. S. Good and W. V. Smith, Lexington, Ky.
30 Anaerobic Vibrio Isolated from Case of Acute Bronchitis. R. Tunnicliff, Chicago.
31 Pleomorphic Branching Organism Isolated from Case of Chronic Rhinitis. R. Tunnicliff, Chicago.
32 Esterase Activity of Plain and Dextrose Broth Cultures of Typhoid Bacillus. A. I. Kendall and J. P. Simonds, Chicago.
33 *Bacteriologic and Chemical Evidence of Occurrence of Hexose Sugar in Normal Milk. H. M. Jones, Chicago.
34 *Treatment of Tetanus by Antitetanic Serum. E. E. Irons, Chicago.
35 *Growth and Viability of Streptococci of Bovine and Human Origin in Milk and Milk Products. D. J. Davis, Chicago.
36 *Renal Changes in Rabbits Inoculated with Streptococci. E. R. LeCount and L. Jackson, Chicago.
37 Etiology of Pyemic Arthritis in Foals. F. W. Schofield, Toronto.

19. **Tuberculocidal Action of Disinfectants.**—DeWitt and Sherman found that phenol in 5 per cent. water solution kills human tubercle bacilli in five minutes, one hour, six hours and twenty-four hours. It is nearly as efficient in 1 per cent. solution and shows some tuberculocidal action down to 0.1 per cent. solution. Formaldehyd in 1 per cent. solution kills all tubercle bacilli in one hour (shorter time not tested). In 0.01 per cent. solution it kills in twenty-four hours, so no disease develops in guinea-pigs. Formaldehyd, therefore, is somewhat more efficient than phenol. Ethyl alcohol in 25 per cent. solution kills all tubercle bacilli within one hour (shorter time not tried). Acetone, chloroform and ether have very little if any, tuberculocidal influence. Toluene and iodin show slight influence. Of the metallic salts used, mercuric chlorid shows the greatest tuberculocidal action, 0.001 per cent. killing in twenty-four hours, and 0.1 per cent. in one hour. Gold chlorid in 0.005 per cent. solution kills in twenty-four hours, while 0.025 per cent. silver nitrate kills in the same time. One-tenth per cent. gold tricyanid and 5 per cent. copper chlorid kill the organisms in twenty-four hours.

From a comparison of the results of the experiments contained in this paper with those of disinfection work on other more rapidly growing organisms, the *Bacillus tuberculosis* appears less resistant than the streptococcus, staphylococcus, pneumococcus or gonococcus, or than the *Bacillus typhosus*, coli or anthracis spores, to phenol, formaldehyd, $HgCl_2$, $AgNO_3$ and $AuCl_3$, but more resistant than these other organisms to alcohol, chloroform, ether, acetone, toluene and Lugol's solution. The fat content of the tubercle bacillus does not determine its resistance to disinfectants. These experiments seem to show that if the comparatively high content of this organism differentiates its behavior from that of bacteria of low fat content, it does so by rendering to tubercle bacillus more resistant to fat solvents, and less resistance and to substances insoluble in fats.

22. **Antibodies in Rats on Osborne-Mendel Food.**—In order to learn the effects of the Osborne-Mendel food on antibody production two sets of experiments were carried out by Hektoen, each involving a group of stunted and of normal rats. Similar results were obtained in each case. The stunted rats were placed on the special food five days before the injection of the sheep blood. The materials for the food were supplied by Professor Mendel and the food was pre-

pared according to his directions as follows: take 380 gm. corn gluten (specially prepared), 280 gm. "protein-free milk," 20 gm. Duryea's corn starch, 320 gm. lard; melt the lard at a low temperature and stir into it the other ingredients previously mixed; cool after thoroughly mixing, and put through an absolutely clean meat chopper several times. The paste keeps well in glass jars. The rats were kept supplied constantly with all they would eat, care being taken to pack the food well in suitable cups. The cages were kept clean and fresh water supplied regularly. This food arrested growth. The control animals were fed as usual.

In order to reduce the chances of accidental death the first bleeding was made on the fourth day after the injection of the antigen (1 c.c. of a 10 per cent. suspension of sheep blood per kilo of weight intraperitoneally), then every third day two times, and after that at longer intervals. The determinations of the lysin were made by finding the highest dilution of the serum, heated at 56 C. for thirty minutes, and complemented with guinea-pig serum (0.0125 c.c.), at which, distinct lysis was produced. The total quantity in each tube was 0.6 c.c., including 0.2 c.c. of a 5 per cent. suspension of sheep corpuscles, carefully washed, 0.0125 c.c. of guinea-pig serum, and the requisite amount of heated rat-serum, the rest being salt solution. The mixtures were incubated for two hours and then placed in the ice-box until the following morning.

The curves run fairly parallel; there is no outstanding difference in the results in the stunted and the normal rats, and there is just as much variation between the individual members of one group as of the other. That there should be variation is not surprising especially in view of the probable influence of the bleedings, to which attention has been called. It appears then that, so far as the results of these experiments indicate, the arrest of growth in rats by the Osborne-Mendel method does not cause any disturbances in the production of antibodies.

23. **Bacteriology of Vaginitis.**—From his analysis Sharp concludes that vaginitis is largely (and may be entirely) gonococcal in origin, and that the gonococcus is present as long as the discharge continues. If there is a secondary invader it either cannot easily be cultivated aerobically, or it is a normal inhabitant of the vagina, and it does not altogether replace the gonococcus. The immunity to the gonococcus seemed to diminish after a few months, after which the infection frequently persisted. This immunity could be followed by complement-fixation or cutaneous tests. Sharp found the latter more delicate as it gave a suggestive reaction when the immunity was too weak for complement-fixation. The cases giving a definitely positive test with one did with the other also. Definite diagnosis from smears seemed of value only in the few cases when carefully examined Gram preparations showed the typical gonococcal picture, while a majority of slides could not be called positive unless confirmed by other signs. While laboratory methods are of assistance in determining the nature of the infecting organism, Sharp states, that none of them seems to be of value in defining the time of its elimination.

25. **Growth of Gonococcus and Staphylococcus.**—Crabtree claims that the evidence presented by Warden that gonorrheal urethritis is due to the *Staphylococcus albus* is based on erroneous interpretations of his observations and is fallacious. Gram-negative diplococcal staphylococci may be produced in the laboratory, and it is conceivable that they also occur in the urethra, but Gram-negativeness is due to mechanical interference of albumin with the Gram stain. The *Staphylococcus albus* has no stage of growth in which it is a Gram-negative organism. The appearance is due to an artefact.

27. **Infection with Bacterium Tularense.**—A case of ulcerative conjunctivitis and lymphadenitis in man is shown by Wherry and Lamb to be caused by a minute, capsulated bacterium in all probability identical with *B. tularense*, which was first discovered by McCoy and Chapin in a plague-like disease of the California ground-squirrel. Without the employment of very special methods of staining and cultivation, the virus, although it was known not to pass the Berkefeld filter No. 5, remained invisible. The authors recommend anilin-water-Hoffman's violet particularly for its demonstration, and in addition to the coagulated hen's egg-yolk recommended by McCoy and Chapin for its cultivation, they found that hen's ovomucoid with a trace of yolk is also a favorable medium. Their findings would seem to indicate that this disease is wide-spread among rodents. Further, they call attention to the fact that this recently discovered disease of rodents is apparently sufficiently virulent for gray mice to warrant the presumption that it may some day take its place along with *B. pestis* as a menace to man.

33. **Hexose Sugar in Milk.**—Bacteriologic and chemical evidence is presented by Jones which indicates that milk normally contains a substance which reacts like dextrose.

34. **Treatment of Tetanus.**—An analysis of 225 cases is made by Irons. From these statistics it appears that the mortality of tetanus treated by tetanus antitoxin is about 20 per cent. lower than the average mortality of tetanus treated without serum. Twenty patients of whom 11 were acute, 5 chronic and 4 unknown incubation, received intravenous injections of serum either alone or in combination with other methods of injection. The collective mortality of these was 65 per cent. Of those who died, however, treatment was begun within eight hours in 1, within twenty-four hours in 5, on the third day in 2 and on the fourth day of symptoms, or later, in 3. In 2 the duration of symptoms before treatment was not noted. Of 37 patients who received antitetanic serum intraspinally either alone or in combination with other methods of injection, 16 were acute, 17 chronic and in 4 the incubation period was unknown. The collective mortality was 56.7 per cent. Of those who died 5 received antitoxin within twenty-four hours after the appearance of symptoms, 5 received first treatment on the second day of symptoms, 4 on the third day, 2 on the fifth day or later, and in 3 the duration of symptoms before treatment was not noted.

Irons believes that the delay of treatment until the second or third day of symptoms, and the small doses (1,500 to 3,000 units) which a number of these patients received, go far toward explaining the failure of these methods to reduce the death-rate in this series below 50 per cent. The unfortunate fact that often patients do not apply for treatment until the second or even the third day of symptoms can not be used as an argument against a method of treatment which offers a reasonable hope of success if instituted early in the disease. Magnesium sulphate was given intraspinally in eighteen cases which also received serum. Four cases, two acute and two chronic, recovered giving a mortality for the group of 77 per cent. In two cases death occurred shortly after the injection, with symptoms of respiratory paralysis.

Irons emphasizes that it is important that the full effect of the antitoxin should be obtained immediately and this may be accomplished by giving 3,000 to 5,000 units intraspinally and 10,000 to 20,000 units intravenously at the earliest possible moment after symptoms of tetanus appear. On the following day the intraspinal injection may be repeated. The blood remains strongly antitoxic for several days. On the fourth or fifth day 10,000 units should be given subcutaneously to maintain the antitoxin content of the blood. If only a small amount of antitoxin (3,000 to 5,000 units) is available it should be given intraspinally. Intraspinal and intravenous injections should be given with all the precautions usually employed for these methods.

This use of antitoxin in no respect replaces other necessary recognized non-specific methods of treatment in tetanus. Surgical treatment of the site of infection should be instituted at once. The patient should be placed at rest in bed in a quiet, darkened room, and should receive sufficient sedatives to control convulsions, together with adequate supply of fluid nourishment, and attention to the elimination by kidney and bowel. The necessity for large and continued doses of sedatives such as chloral or chlorbutanol should not blind the physician to the possible danger of giving an overdose. The condition of the patient should be carefully watched, and a revision of the standing orders for sedatives made whenever symptoms suggest the decrease or increase of dose.

35. **Growth of Streptococci in Milk.**—Davis found that in the process of milk-souring the growth of hemolytic streptococci is inhibited and the organisms are gradually destroyed. They are killed in three hours or less by the acidity of sour milk (forty-eight hours after curdling) and of buttermilk. In ordinary butter they die in the course of a few days, due to the acidity, although in neutral butter they live for a long time. In ice-cream, hemolytic streptococci remain alive for at least eighteen days without any appreciable diminution in number or virulence. Ice-cream would seem to be, therefore, a most suitable medium for the transmission and preservation of dangerous streptococci. Separator-cream contains more streptococci than the whole milk, skim-milk considerably less, while the sediment contains a large number. Hemolytic streptococci do not multiply to any extent at 20 C. or below in milk; at 26 C. there is little or no multiplication during the first six hours in sterile or commercial milk, but at the end of twenty hours there is considerable increase in the sterile milk. In the commercial milk their growth is inhibited by the growth of other bacteria; this holds also for higher temperatures. It seems that under no conditions met with in the ordinary handling of milk can there occur any appreciable multiplication of hemolytic streptococci. Inasmuch as under the most favorable temperature, multiplication of hemolytic streptococci in milk does not occur inside of one to two hours, it is impossible for any appreciable increase to occur during the short interval between the raising and lowering of the temperature of milk in the process of pasteurization.

36. **Renal Changes in Rabbits Inoculated with Streptococci.**—Among the results mentioned by LeCount and Jackson are the demonstration of fewer changes in the kidneys of rabbits treated with antistreptococcus serum or vaccine than in those of untreated animals, and the presence of changes characteristic of chronic nephritis in a large number of animals inoculated with streptococci. The most important result, however, is the experimental production of alterations essentially subacute and quite like the acute interstitial nephritis in human kidneys caused by the acute infectious diseases complicated by or due to streptococcus infection. Then, too, the authors wish to emphasize the great need of thorough study of the kidneys of control animals in any investigation of experimental nephritis.

Journal-Lancet, Minneapolis

October 1, XXXIV, No. 19, pp. 501-524

38 1. Periosteal Round-Celled Sarcoma of Femur; 2. Cretinism; 3. Rupture of Symphysis Pubis During Labor. G. M. Williamson, Grand Forks, N. D.

39 Diagnosis and Treatment of Afebrile Convulsions in Infancy and Early Childhood. F. W. Schlutz, Minneapolis.

40 Routine Technic of Test-Meal and Bismuth Roentgenography. H. S. Willson, Minneapolis.

41 Psychic Shock Following Operations. J. E. Engstad, Minneapolis.

Journal of Medical Research, Boston

September, XXXI, No. 1, pp. 1-176

42 Studies on Cerebrospinal Fluid. H. Cushing, Boston.

43 Id. Theories of Drainage of Cerebrospinal Fluid with an Analysis of Methods of Investigation. L. H. Weed, Boston.

44 Id. Pathways of Escape from Subarachnoid Spaces with Particular Reference to Arachnoid Villi. L. H. Weed, Boston.

45 *Id. Dual Source of Cerebrospinal Fluid. L. H. Weed, Boston.

46 *Id. Drainage of Intra-Ocular Fluids. P. Wegefarth, Boston.

47 *Id. Establishment of Drainage of Intra-Ocular and Intracranial Fluids into Venous System. P. Wegefarth, Boston.

48 Id. Analogous Processes of Cerebral and Ocular Fluids. P. Wegefarth and L. H. Weed, Boston.

45. **Dual Source of Cerebrospinal Fluid.**—This lengthy and detailed study is briefly summarized by Weed as follows: Cerebrospinal fluid appears to be derived from two sources: (a) the choroid plexuses in the cerebral ventricles; (b) the perivascular systems of the nervous tissues. No evidence is afforded by these observations of any absorption of cerebrospinal fluid into the cerebral capillaries. Under certain pressure conditions an extensive injection of the perivascular system from the subarachnoid spaces can be secured by the ferrocyanid method.

46. **Drainage of Intra-Ocular Fluids.**—As a result of his studies Wegefarth holds that in the process of elimination of the aqueous fluid at the so-called filtration angle, the fluid gains access to the scleral sinuses in the lower animals (cat, dog, rabbit) by passage through "pectinate villi," which are analogous in structure and function to the arachnoid villi of the cerebral meninges. The process in man is the same as in lower animals, but the pectinate ligament tufts extend in an unbroken chain around the periphery of the anterior chamber. The large neurones of the retina possess pericellular spaces which communicate with the aqueous reservoir, and that by means of these communications the waste products of the cells appear to be in all likelihood eliminated. The rabbit and probably in other animals as well, the ocular and cranial fluids come into direct contact around the central vessels and in the tissue of the optic nerve. The anterior chamber can be injected from the veins after aqueous decompression. Neither the choroid, ciliary body, or cornea play any part in aqueous absorption, whereas the function of the iris in this respect is still a doubtful problem.

47. **Drainage of Intra-Ocular and Intracranial Fluids Into Venous System.**—In Wegefarth's experiments a direct communication between the sinuses of the sclera and the fluid reservoirs in the canine eye has existed for at least forty-eight hours without hemorrhage into the ocular cavity. A direct communication between the superior longitudinal sinus and the subarachnoid space of normal dogs has remained patent during observations up to seven days in length, without hemorrhage into the fluid spaces. Sinoventricular punctures in the case of a hydrocephalic kitten were followed by improvement in the animal's general condition. No intracranial bleeding was occasioned by these punctures.

Journal of Outdoor Life, New York

October, XI, No. 10, pp. 289-319

49 Can I Keep up "Treatment" after I Leave the Sanatorium? E. Washburn, Rutland, Mass.

50 Prenatal and Early Childhood Problems in Tuberculosis. W. C. White, Pittsburgh.

51 Children's Garden at Tuberculosis Day-Camp. "Westfield." R. Weiss.

52 New Health. E. T. Devine, New York.

Lancet-Clinic, Cincinnati

October 3, CXII, No. 14, pp. 361-384

53 Diagnostic Value of Sphygmomanometer in Examinations for Life Insurance. J. W. Fisher, Milwaukee, Wis.

54 Prognosis of Cardiac Disease, with Reference to Life Insurance. R. H. Babcock, Chicago.

55 Chronic Discharging Ears and Life Insurance. W. Mitheefer, Cincinnati.

Medical Record, New York

October 10, LXXXVI, No. 15, pp. 615-656

56 Relation between Surgical Treatment and Radiotherapy of Cancer. I. Levin, New York.

57 Biliary Surgery. J. F. Erdmann, New York.

58 Dietetic Treatment of Children During Second Period of Life. C. G. Leo-Wolf, Buffalo.

59 Hyperthyroidism. I. W. Ballard, Opelika, Ala.

60 Periodicity of Drink Neuroses. T. D. Crothers, Hartford, Conn.

61 Health Officer and Tuberculosis Problem in Rural Communities. S. A. Knopf, New York.

Military Surgeon, Chicago

October, XXXV, No. 4, pp. 311-410

62 Size of Sanitary Soldier. W. H. Crum, U. S. Army.

63 An Efficient Method of Heating Water in Camps of Some Permanency. A. E. Truby, U. S. Army.

64 *Treating Gelatin Capsules with Formaldehyd Solution for Ipecac Medication. E. L. DeLanney, U. S. Army.

65 Methods of Handling Field Hospital Equipment. R. H. Goldthwaite, U. S. Army.

66 Convenient Stake Puller and Stake Driving Cap. W. W. Reno, U. S. Army.

67 Postgraduate Study in Vienna and Its Value. M. A. DeLaney, U. S. Army.

64. **Gelatin Capsules Treated with Formaldehyd.**—To prevent ipecac coming in contact with the stomach DeLanney put it in gelatin capsules previously treated with formaldehyd to render them insoluble in an acid media. Number 00 gelatin capsules were soaked for a few hours in a 20 per cent. solution of formaldehyd and then dried. They became very brittle and somewhat distorted but not enough so to prevent their subsequent filling. They were then filled with 1 gm. of powdered ipecac. This method of giving ipecac proved very satisfactory in a case of amebic dysentery and there was no nausea. The patient improved very rapidly

V. 191

under the combined treatment and the stools dropped to one a day. The combined method of giving 1 gm. ipecac three times a day and emetin ½ grain twice a day for three days, then increasing ½ grain for six days seemed to act much better than when either the ipecac or the emetin treatment had been given previously, the patient gaining 5 pounds during the treatment and suffering no inconvenience.

Modern Hospital, St. Louis

October, III, No. 4, pp. 215-282

68 Hospital as an Educational Institution. C. H. Mayo, Rochester, Minn.
69 St. Luke's Hospital, Jacksonville, Fla. E. F. Stevens, Boston.
70 Feeding the Hospital—Food. L. Graves, Cleveland.
71 Hospital Cost Accounting. F. C. Townsend, New York.
72 New Psychopathic Hospital for Chicago Marks New Era. H. I. Davis, Chicago.
73 "Twilight Sleep" from Hospital Viewpoint. W. H. W. Knipe, New York.

New Jersey Medical Society Journal, Orange

October, XI, No. 10, pp. 493-544

74 Oration in Medicine. L. F. Barker, Baltimore.
75 Radiography of Stomach and Intestines. C. F. Baker, Newark.
76 Some of the Histologic Changes Found in Tabes. F. H. Thorne, Morris Plains.
77 German Surgery. J. H. Bradshaw, Orange.

New Orleans Medical and Surgical Journal

October, LXVII, No. 4, pp. 311-418

78 Some Unsolved and Debatable Problems in Tuberculosis. E. O. Otis, Boston.
79 Extensive Case of Osteomyelitis, Involving Two-Thirds of Skull, Originating from Frontal Sinusitis. W. T. Patton, New Orleans.
80 Artificial Pneumothorax in Treatment of Lung Abscess. I. I. Lemann and U. Maes, New Orleans.
81 Origin of Blood-Cells and Differentiation of Leukocytes. H. W. Wade, New Orleans.
82 Differential Leukocyte Count and Its Interpretation. F. M. Johns, New Orleans.
83 Total Red and White Cell Counts and Hemoglobin and Color Index Estimation. J. C. Cole, New Orleans.
84 *Case of Extensive Lupus, Treated with Tubercle Bacilli Emulsion. W. J. Durel, New Orleans.
85 Some Problems in Obstetrics. P. Michinard, New Orleans.

84. **Case of Extensive Lupus, Treated with Tubercle Bacilli Emulsion.**—Taking the neutrophil blood-picture every second day. In a case of skin tuberculosis, with cervical glandular tuberculosis and also taking a differential blood-count, Durel administered tubercle bacilli emulsion according to the changes in the neutrophil index. Starting bacilli emulsion with 0.00,000,000,5 mg.; this was increased, diminished, or stopped altogether, according to the fall or rise in the neutrophil index. During the greater part of the treatment, bacilli emulsion was not given if the neutrophil index was above 96. Bacilli emulsion was repeated when the neutrophil index was at or below 94, and it was never increased if the neutrophil index was not at or below 92.

At the end of four months Durel had reached the dose of 0.00,000,5 mg. of bacilli emulsion, and noticed that the lupus below the left eye showed signs of improvement. Increasing the dose of bacilli emulsion when the neutrophil index was at or below 92, he reached the dose of 00.005 mg. at the end of the sixth month. Then he noticed that the neutrophil index would remain above 96 for a week or ten days at a time, and would fall only when he would cease the use of the bacilli emulsion. Durel also noticed that when he administered the emulsion with the index above 96, especially when the larger doses of emulsion were given, that this was always followed by marked redness around the ulcers, with an increase in secretions and a swelling of the left eye. On four occasions the temperature rose to 100 F., with headache and pains. At the end of the first year, though the ulcers were improved, Durel realized that the healing of the ulcers had been retarded by the giving of too large and too frequently repeated doses of bacilli emulsion, and these given with a neutrophil index above 96. Then it was that he administered (during the last six months) bacilli emulsion in smaller doses (00,000,000,5 to 0.00,000,000,005 mg.), and only when the neutrophil index was below 94 or 92. Never was the dose increased after, if the index was not below 92. This treatment was followed by a progressive healing of the extensive ulcers, and the enlarged cervical glands disappeared entirely three months before the lupus healed altogether. The higher doses and too frequently repeated doses of emulsion caused too frequent local reactions, the latter proving injurious to the patient.

The observations noted in this case confirm, to Durel's mind, the hypothesis that artificial tubercle bacilli proteins stimulate the bone-marrow cells, etc., producing a leukocytosis, especially that of the neutrophils; that a moderate qualitative and quantitative leukocytosis is beneficial to the healing of the tuberculous foci; that overstimulation, with large doses of any of the tubercle bacilli products, causes an excessive and injurious leukocytosis, proving injurious by flooding the blood-circuit with new, immature leukocytes, deficient in effective antibodies, the latter immature leukocytes overcrowding the lupus or tuberculous foci, preventing the healing of the diseased area. This Durel states shows that direct leukocytic immunity is the prime factor in the healing of all tuberculous foci, and that direct immunization takes place in the cells immediately surrounding the tuberculous foci.

Southern Medical Journal, Mobile

October, VII, No. 10, pp. 771-844

86 Medicolegal Relations of Pellagra. J. W. Babcock, Columbia, S. C.
87 Bacteriologic Examination of Knoxville Milk. A. L. Smith, Knoxville, Tenn.
88 Spasm of Pylorus. Report of Case Followed Through Four Years. G. J. Greil, Montgomery.
89 Intestinal Indigestion. C. C. Elebash, Selma.
90 Intussusception—Operation—Recovery. F. W. Wilkerson, Montgomery.
91 Cerebellar Dysergia from Malarial Thrombosis. T. A. Williams, Washington, D. C.
92 Malarial Pernicious Fever. L. Sexton, New Orleans.
93 Clinical Importance of Arterial Hypertension; Treatment. I. W. Ballard, Opelika.
94 Blood Letting in Pneumonia. H. Boyd, Scottsboro.
95 Pneumonia. F. W. Galloway, Florala.
96 Acute Gastric Dilatation. W. Mason, Jr., and N. Evans, Murray, Ky.
97 Adrenalin Cocain Surface Anesthesia. R. S. Cauthen, Charlotte, N. C.
98 Typhoid Perforation with Abscess Appendix—Operation—Recovery. W. C. Gewin, Birmingham.
99 Lithopedion in an Extra-Uterine Pregnancy. J. P. McMurphy and N. E. Sellers, Atmore.
100 Relative Value of Radium and Roentgen Ray in Treatment of Skin Diseases and Cancer. C. A. Simpson, Washington, D. C.
101 Bone Regeneration. Report of Case. R. B. Slocum, Wilmington, N. C.
102 Skin Cancers, J. L. Kirby-Smith, Jacksonville, Fla.
103 Cystoscope: Its Use and Abuse. L. Thompson, Hot Springs, Ark.
104 Renal Hematurias as Influenced by Ureteral Catheterization. G. Timberlake, Baltimore.
105 Treatment of Specific Leukorrhea. R. Duffy, Tampa, Fla.
106 Postgraduate Study in Vienna. N. D. Bitting, Durham, N. C.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

September 26, II, No. 2804, pp. 525-564

1 Evolution of Toxemic Iritis. W. M. Beaumont.
2 Insects and War. A. E. Shipley.
3 Irrigation Treatment of Acute Gonorrhea in Male. W. W. Powell.
4 *Treatment of Fibromyomata of Uterus. A. Donald.
5 *Treatment of Contracted Pelvis in Pregnancy and Labor. H. Jellett.
6 *Id. F. Frank.
7 Case of Rupture of Uterus Through Scar of an Old Cesarean Section. A. T. Smith.
8 Further Experiences with Veratrone in Treatment of Eclampsia. F. W. N. Haultain.
9 *Rapid Relief in Acute Lumbago by Manipulation and Active Movement. W. Haig.
10 Babinski Sign in Transient Functional Diseases. F. C. Eve.

4. **Treatment of Fibromyomata of Uterus.**—Donald is opposed to the Roentgen-ray treatment for uterine fibroids. His objections are stated as follows: 1. All who are engaged in gynecologic work know how difficult it sometimes is to be sure that we are dealing with a fibroid and not with some other condition. Mistakes are not uncommon: (a) In cases of pelvic inflammation in which hard masses are found inseparable from the uterus; (b) in cases of solid or tense ovarian tumors, especially if they are adherent to the uterus;

(c) in cases of ovarian and tubal disease associated with uterine fibroids; (d) in sarcomata and adenomyomata of the uterus, in which the diagnosis is only made with certainty after the tumor has been removed; (e) in carcinomata of the uterus associated with a fibroid, or in large cancerous growths in the pelvic cellular tissues; (f) degenerations in fibroid tumors, especially red degeneration and calcareus change.

Donald has analyzed 201 of the cases in which he has operated and finds the following complications were present: Ovarian cyst, 13 cases; red degeneration, 12 cases; suppuration in tube or ovary, 6 cases; appendicitis, 4 cases; calcareus degeneration, 5 cases; fibrocystic tumor of uterus, 2 cases; carcinoma in the fibroid, 2 cases; adenomyoma, 2 cases; necrosed polypus, 1 case; hydroperitoneum, 1 case—that is, he found complications in 44, or in nearly one-fourth of the cases. Sufficient time has not elapsed since the introduction of the Roentgen-ray treatment for fibroids to enable one to state that there will be no further trouble after the hemorrhage has ceased. But judging from what has happened in many cases after the expectant treatment, Donald says, there is every reason to believe that many of the tumors which seem for the present to have been successfully treated by Roentgen rays will cause serious trouble in the future. The later degenerative changes are just as likely, if not more likely, to occur after this treatment as after the expectant treatment. Further, if operation has to be undertaken at a later stage there is reason to believe that it will be more difficult after Roentgen-ray treatment.

The advantages of operative as compared with Roentgen-ray treatment are summed up as follows: 1. The mortality of the operation is now very small—in cases suitable for Roentgen-ray treatment it is under 2 per cent. (3 cases are deducted from the 9 fatal cases as unsuitable for Roentgen-ray treatment—1 case of acute intestinal obstruction, 1 case of infected fibroid and 1 case of large calcareus fibroid in which death occurred from peritonitis). The mortality following Roentgen-ray treatment cannot be estimated for many years. 2. The cases in which operation was most dangerous (cases of profound anemia) a few years ago, may now be undertaken with little risk. 3. The patient after operation is at once and for all relieved of any anxiety concerning the tumor. Donald believes that Roentgen-ray treatment has a place in gynecology in the treatment of cases of chronic metritis associated with profuse hemorrhage at the menopause. But, he says, it should be given up in cases of fibromyomata of the uterus.

5. **Treatment of Contracted Pelvis.**—As to the treatment of the second degree of pelvic contraction, Jellett says, that pubiotomy is the operation of choice, unless there are special complications present. It is specially indicated in the young multipara, because owing to previous labor, the vaginal canal is dilated and lacerations are unlikely to occur, and because of the effect of the operation on subsequent pregnancies. On the other hand, cesarean section is more suitable in the elderly primipara, because vaginal laceration is more likely to occur, and because it is unnecessary in her to take account of further pregnancies. Premature labor is only indicated under special conditions which render either of the foregoing operations impossible or inadmissible. Craniotomy is only permissible when the child is dead.

6. **Id.**—In cases with large disproportion Frank advises the classical cesarean section, if one can guarantee asepsis. If the asepsis is doubtful, delivery by the suprasymphyseal route is advocated. In the middle degrees of narrowing the subcutaneous symphysiotomy is to be preferred in multipara. In primipara, with narrow soft parts, the suprasymphyseal delivery is to be preferred if there is suspicion of infection. In clean cases in primipara classical cesarean section is advised. In primipara symphysiotomy is to be considered if there is only slight obstruction to delivery.

9. **Relief in Acute Lumbago by Manipulation and Active Movement.**—The method of treatment emphasized by Haig consists of (1) deep thumbing of the lumbar muscles, in process of which a painful area is usually found either in the middle line or to one or other side; (2) fixing the part of the vertebral column below this painful region by firm pressure of the thumb on each side of the spine; and (3) making the patient perform movements of flexion, acute dorsiflexion, lateral flexion and rotation. The result is cure of the attack of lumbago, inasmuch as the patient is able at once to return to his work, and in no case has Haig had to repeat the process.

Dublin Journal of Medical Science

September, 111, No. 513, pp. 161-240

11 Relation of Theory and Practice in Operative Treatment of Genital Prolapse. H. Jellett.
12 Insomnia. T. J. Kelly.
13 Treatment of Syphilis by Salvarsan in Dr. Steeven's Hospital, Dublin. H. C. Smyth and G. E. Pepper.
14 Clinical Report of Rotunda Hospital from November 1, 1912, to October 31, 1913. H. Jellett, D. G. Madill and R. M. Allan.

Lancet, London

September 26, II, No. 4752, pp. 783-834

15 Dysentery. F. M. Sandwith.
16 Improvisation of Apparatus in Treatment of Certain Fractures in Modern Warfare. (To be continued.) J. H. Watson.
17 Case of Enteric Fever Complicated by Purpuric Symptoms. G. R. Bruce.
18 *Composition and Derivatives of Urinary Dextrin. P. J. Cammidge and H. A. H. Howard.
19 Case of Extra-Uterine Pregnancy with Prolonged Retention (Two Years) of Fetus. E. M. Farrer.
20 Sterilization of Potable Waters by Means of Calcium Hypochlorite. J. C. Thresh.

18. **Urinary Dextrin.**—The discovery of a process by which the dextrin in urine can be estimated, even in the presence of sugars, if free pentoses have been excluded by preliminary tests, has enabled Cammidge and Howard to investigate the occurrence of this body in diabetes and other pathologic conditions and also to watch the variations that occur in different circumstances. The process, which is described in detail in the paper, is not sufficiently delicate to detect the trace of dextrin present in normal urines and the authors have found that the urine of healthy individuals has no "iodin coefficient" of nought. When carbohydrate metabolism is being imperfectly carried out a high iodin coefficient is obtained. If, however, the interference with carbohydrate metabolism is such that sugar appears in the urines, a previously high iodin coefficient usually falls, to rise again when the sugar disappears.

In many cases of persistent glycosuria, too, this movement of the iodin coefficient and the sugar excretion in opposite directions has been observed, a rise in the one being accompanied or preceded by a fall in the other. In severe cases of diabetes, in which more sugar is being excreted in the urine than would be accounted for by the carbohydrate taken as such in the food, particularly when a fatal termination is close at hand, the course of the iodin coefficient of the urine and the sugar excreted follow each other.

These observations suggest that the urinary dextrin is probably a derivative or antecedent of glycogen intermediate between that substance and dextrose. In the former case the body still possesses the power of breaking down glycogen to a polysaccharid of low molecular weight, but this, instead of being converted into dextrose, which in its turn would give rise to CO_2 and H_2O, suffers irregular oxidation and may give rise to a body having the formula: $(C_6H_{10}O_5)$ x—O—CH—CH(OH).CH—CH.OH—CH.OH—CH_2.OH. O_3 |—— O ——| oxidizing the end CH_2OH group the authors should have a substance with the formula: $(C_6H_{10}O_5)$ x—O—CH—CH(OH). |—— O ——| CH—CH.OH—CH.OH—CH.OH. By splitting off the terminal CO_2 group a dextrin-like body with the formula: $(C_6H_{10}O_5)$ x—O—CH—CH (OH).CH—CH.OH—CH_2.OH, |——O——| would result. This corresponds to one of the alternative formula, $(C_6H_{10}O_5)n.C_6H_{12}O_6$, which the authors' analysis of

the urinary dextrin suggests is probable for that body. They suggest that it is also possible that the urinary dextrin may result from an incapacity on the part of the tissues to form glycogen from dextrose, the process stopping short at the intermediate dextrin stage. In support of this view is the fact that in mild and intermittent cases of glycosuria the iodin coefficient of the urine vanishes on a carbohydrate free diet to reappear again when dextrose is added to the food in sufficient amount to bring about a return of the glycosuria, suggesting that when the glycogen stores of the body have been reduced by the exclusion of carbohydrate from the diet the tissues recover to a certain extent their powers of building dextrose into a more complex molecule, but cannot carry all of it beyond the dextrin stage.

The authors found in cases of hepatic disease, in which dextrose can be utilized, but in which levulose and lactose give rise to "alimentary" glycosuria, that the ingestion of dextrose is not associated with an increase in the iodin coefficient of the urine. When, however, either of the other sugars is given in sufficient amount the iodin coefficient rises, suggesting that dextrose can be converted into glycogen, but that part of the levulose and lactose can only be carried to the dextrin stage, some being excreted in an even less completely metabolized condition.

Archiv für klinische Chirurgie, Berlin

September 15, CV, No. 3, pp. 529-788. Last Indexed October 3, p. 1237

21 Treatment of Tuberculous Intracapsular Focus in Neck of the Femur. (Tuberkulöse Knochenherde im Schenkelhals.) W. Keppler and F. Erkes.
22 *Partial Occlusion of Large Arteries. W. S. Halsted (Baltimore).
23 Fenestrated Plaster Cast to Induce Local Passive Hyperemia. (Der gefensterte Gipsverband als Mittel lokaler Stauung.) Sprengel.
24 Fracture of the Calcaneus and Influence on Earning Capacity. (Entstehung und Behandlung der Calcaneusfrakturen und ihre Folgen in Bezug auf die Erwerbsfähigkeit.) Z. Brind.
25 *Tumors Induced by Sensitized Embryonal Cells. (Geschwülste, welche mittels sensibilisierter arteigener Embryonalzellen erzeugt werden.) G. Kelling.
26 *Surgical Treatment of Suppurative Meningitis. Barth.
27 Diagnosis of Horeshoe Kidney. (Hufeisenniere.) M. Zondek.
28 *Kidney Calculi. (Zur Lehre der Nierencalculose. Diagnose. Indikationsstellung. Pyelotomie.) M. Zondek.
29 Fracture of Head of Femur. O. Holbeck.
30 Resection of Tuberculous Hip-Joint. (Die Exstirpation des tuberkulösen Hüftgelenkes; Reposition des Gelenkkopfes.) B. Riedel.
31 *Removal of Second Spinal Ganglion in Treatment of Occipital Neuralgia. F. Oehlecker.
32 *Relations Between Phrenic Nerve and Cervical Neuralgia. F. Oehlecker.
33 Gleanings from Old Works on Military Surgery. (Kriegschirurgische Lesefrüchte aus alter Zeit.) A. Köhler.

22. See THE JOURNAL, July 18, 1914, page 207.

25. **Tumors Induced by Injection of Embryonal Cells.**—Kelling says that Cohnheim's theory that tumors originate in or from embryonal cells seems very plausible for a certain proportion of tumors. We know that hydatidiform mole and chorio-epithelioma develop directly from embryonal cells. Kelling has been experimenting with chicken embryos injected into the abdominal cavity of a hen, at the same time that blood was injected elsewhere. This was followed by the development of tumors when the embryo-cell donors as well as the recipient hens had been previously sensitized by blood injections (albumin) and only when the donors had been sensitized long enough beforehand for the ova in the ovaries to feel the effect. The abdominal cavity was examined beforehand to exclude spontaneous tumors.

After the injection of the embryonal cells a tumor developed in five of the twenty-one hens. The structure of the tumors differed entirely from that of spontaneous tumors in hens; these are generally sarcomas. The blood used came from dogs, pigeons, and carp, but the only positive responses were with dog blood. In one instance the albumin was supplied in the form of liver with which the hen was fed. The results of these and his other experiments therefore sustain Cohnheim's embryonal cell theory as to the origin of certain tumors. They show further that alien albumin—even by the mouth—influences the development of these tumors. They seem to be directly connected with overfeeding with albumin. This view is sustained, he adds, by the tumors which develop in trout fed with pig, beef or sheep liver, heart, or lung tissue as Gaylord and March reported in the *Bulletin of the Bureau of Fisheries*, April, 1914. A number of the problems involved might be settled by feeding healthy small animals through several generations with albumin. In human beings we know that disease in stomach or intestines renders the wall permeable to alien albumin; the greater the difference between the species, the greater the irritation it sets up. The infant intestine is very permeable for alien albumin, especially egg albumin. When a congenital tumor, of the types which correspond to Cohnheim's theory, is found in a child, the food the mother and child have been taking should be carefully investigated. One practical conclusion from Kelling's research is that, at least after a cancer has been removed, raw albumin had better be avoided. If it is eaten cooked, then the digestive juices will break up only so much as they can digest and the rest does not get into the blood. (Compare abstract 107, July 20, 1912, p. 231.)

26. **Surgical Treatment of Purulent Meningitis.**—Barth states that he has cured three patients with purulent meningitis by means of lumbar laminectomy and drainage of the dural sac, after lumbar puncture alone had failed to relieve. His first patient was a young man who had been stabbed in the spinal cord at the ninth thoracic vertebra and developed purulent meningitis. Barth trephined the spine at the point of the trauma but as the fever did not subside he then removed the laminae of the second and third lumbar vertebrae and drained the dural sac above and below, and prompt recovery followed. The second patient was a man of 37 with purulent meningitis after fracture of the base of the skull. Only transient relief was obtained by lumbar puncture repeated five times, but prompt recovery followed laminectomy on the third and fourth lumbar vertebrae. The third case was also of traumatic origin, the young woman having fallen on the street. In another case of traumatic purulent meningitis a complete cure was realized under two lumbar punctures alone. These experiences confirm the curability of purulent meningitis up to a certain stage; conditions here are much like those in the peritoneum and the same principles should be applied in treatment. Lumbar puncture has not only a therapeutic effect but it clears up the diagnosis and throws light on the prognosis, especially the discovery of polynuclear leukocytes. The bacteria may have disappeared from the fluid under the influence of the leukocytes. With tuberculosis, lymphocytes predominate.

28. **Calculi in Both Kidneys.**—Zondek discusses what plan to pursue when both kidneys contain concrements. The vessels should be respected at all hazards and he gives special directions for this. If the shadow cast by the stone is median from the shadow of the kidney proper, then pyelotomy may suffice.

31-32. **Operative Cure of Unbearable Occipital Neuralgia.**—Oehlecker has resected the second spinal ganglion for occipital neuralgia of the severest type and reports the complete cure of three of his five patients. The fourth has succumbed since to the progress of a cancer; the fifth was improved for a time but still has some trouble from the auricular nerve which had been injured in a previous operation for enlarged lymph-glands. He first excluded all causes which might have induced secondary neuralgia, including bearing of heavy loads on the head, infectious disease (malaria, meningitis, influenza and angina), gout and deforming arthritis and all processes, such as tuberculosis in the upper vertebrae, which might cause neuralgic pain as a symptom.

Along with the second spinal ganglion he resected the whole of the second cervical nerve and severed the anterior branch. The operation is not a simple one but there are so many intercommunicating branches that there is no disturbance from loss of the nerve. The neuralgia is cured at once and permanently. The operation is as feasible and logical as gasserectomy for trigeminal neuralgia. While gasserectomy has been largely supplanted by deep injection of alcohol this is not possible for treatment of occipital

neuralgia on account of the location of the nerves involved and the danger of injury to adjoining structures.

He further discusses the neuralgia in shoulder, neck and arm which may be traced to some lesion in or near the diaphragm. Pressure, chronic inflammation or true neuritis may be responsible for the neuralgia, but whatever the cause, the pains can be abolished by severing the phrenic nerve. This seems preferable to merely crushing it, he says, for reasons which he enumerates, adding that the participation of the phrenic nerve in cervical neuralgia is not appreciated as yet but it explains many puzzling cases, and he shows by diagrams the true connection.

Berliner klinische Wochenschrift

September 14, LI, No. 37, pp. 1621-1656

34 Contact Infection of Comparatively Little Moment in Spread of Cholera. F. Wolter.
35 Hypernephroma at Base of Tongue in Woman of 62. H. Coenen.
36 High-Frequency Electric Current in Treatment of Bladder Tumors. (Blasentumoren.) Renner.
37 High Amputation of Uterus to Arrest Pregnancy and Prevent Further Conception in Pulmonary Tuberculosis. (Methodik der Schwangerschaftunterbrechung und gleichzeitiger Sterilisation bei Lungentuberkulose.) M. Kunreuther.
38 Bouillon Cubes as Portable Dry Culture Media. (Trockennährböden.) Pierkowski.

Deutsche medizinische Wochenschrift, Berlin

September 10, XL, No. 37, pp. 1729-1752

39 Gunshot Wounds of Bones and Joints. (Behandlung der Knochen- und Gelenkschüsse.) A. Brentano.
40 Surgical Impressions from the Russo-Japanese War. Schäfer.
41 *Sterilization of Drinking Water in the Field. (Trinkwassersterilisation im Felde.) F. Croner.
42 *Rapid Course in Case of Deforming Spondylitis. (Seltener Fall von Bechterewscher Krankheit.) Hoene.
43 *Chronic Intermittent Mild Technic for Treating Syphilis with Salvarsan. (Der Fehler in der Salvarsanbehandlung der Syphilis.) Kromayer.
44 Cervical Catarrh May Be Induced by Gonorrheal Threads Free from Gonococci. (Verursachen sterile Tripperfäden weissen Fluss?) Orlowski.

41. **Sterilization of Drinking-Water for the Troops.**—Croner remarks that filtration has not proved reliable for troops in the field, and addition of chemicals is not satisfactory on account of the high concentration required. The safest method is by boiling. The German army is supplied with portable apparatus for the purpose which every hour turn out 800 or 900 liters of filtered, sterilized and cooled water. The apparatus is drawn by two horses and weighs about 4,400 pounds. Smaller ones weighing only 100 pounds are also provided; they take apart so that the load can be distributed between two men.

42. **Case of Ankylosed Spine.**—Hoene's patient was a carpenter of 24 who developed Bechterew's disease consecutive to muscular rheumatism. The spine became rapidly rigid so that in six months he was scarcely able to move and had wasted away almost to a skeleton. Three similar cases were mentioned in the army report for 1908-1909; they had been mistaken for muscular rheumatism at first. Siegert has reported three cases much benefited by steam spraying, but nothing gave more than transient subjective relief in this case.

43. **Treatment of Syphilis.**—Kromayer advocates a chronic course of mild doses of salvarsan, beginning with 0.02 gm. and continuing with 0.1 gm. or 0.2 at intervals of a few days until 2 or 3 gm. of the drug have been given in the course of four to six weeks. The effect of this is fully equal to that of an intensive course of mercury during the same period. The general condition improves under the salvarsan, he says, instead of being depressed as with other drugs. Existing heart, kidney, liver or brain affections do not contra-indicate this mild course, only the caution must be redoubled, commencing tentatively with only 0.02 or 0.05 gm. salvarsan. His patients did not seem to stand well the combination of mercury and salvarsan, so now he alternates the course of each. The great drawbacks of salvarsan are its high price and the inconvenience of intravenous administration. For these reasons salvarsan in practical importance ranks below mercury.

Medizinische Klinik, Berlin

August 9, X, No. 32, pp. 1345-1376

45 *Progress in Clinical Diagnosis of Inherited Syphilis. (Physiognomik und Theorie der hereditären Syphilis.) J. K. Friedjung.
46 Examination for Catarrhal Apical Process. (Zur Untersuchung des Lungenspitzenkatarrhs.) R. Güterbock.
47 Induced Pneumothorax in Treatment of Tuberculous Pleuritic Effusion. (Behandlung tuberkulöser pleuritischer Exsudate mit Gaseinblasung.) F. Deutsch.
48 Mechanism of Action of Carbonated Baths on Weak Heart. (Wie wirkt das kohlensaure Bad, ist es ein schonendes oder gymnastisches Verfahren für das schwache Herz?) J. Jacob.
49 *Hematin in the Blood in a Case of Addison's Disease. (Morbus Addisonii und Hämatinämie.) H. Beuttenmüller.
50 Treatment of Acute Gonorrhea. Orlowski.
51 *Necessity for Combating Hypersecretion with Gastric or Duodenal Ulcer. W. Wolff.
52 Term "Metasyphilis" No Longer Justified. E. Schwalm.

August 16, No. 33, pp. 1377-1398

53 Care of the Wounded and after Sunstroke. (Versorgung der Verwundeten und Erkrankten im Kriege; Einrichtung der Militärlazarette im Operationsgebiete.) Brandenburg.
54 *Fracture of Transverse Process of Lumbar Vertebrae. A. Hoffmann.
55 *Vincent's Angina and Diphtheria. (Plaut-Vincentsche Angina und Diphtherie.) F. Reiche.
56 Eruptions with Gonorrhea. C. Diernfellner.
57 *Fatal Potassium Permanganate Poisoning. (Kaliumpermanganatvergiftung.) E. Adler.
58 Modified Technic for Serodiagnosis. (Ueber die Verdauung von Placentapepton durch Serum—gemessen mit der Formoltitration.) E. v. Graff and P. Saxl.

August 23, No. 34, pp. 1399-1420

59 Prophylaxis of Contagious Diseases in the Army. (Verhütung der übertragbaren Krankheiten im Heere.) K. Brandenburg.
60 Beware of Venereal Disease. (W. v. G.: Warnung vor Geschlechtskrankheiten.) F. Pinkus.
61 Civilian Physicians in the Base Hospital. F. Pinkus.
62 Transformation of Treatment of Syphilis. (Wandlungen der Syphilistherapie.) H. Huebner.
63 Pathology of Peritonsillar Abscess. A. Proskauer.
64 *Examination of the Placenta for Gaps. (Beurteilung der Placenta hinsichtlich ihrer Vollständigkeit.) H. Küster.
65 Electric Treatment of Tabes. (Erfolge der Tabesbehandlung mit hochgespannten Gleichströmen.) F. Walter.
66 Experimental Suture of Aorta. A. Hoffmann.

45. **Clinical Diagnosis of Inherited Syphilis.**—Friedjung declares that the physiognomy of children with inherited syphilis is so characteristic that he can pick out such children at a glance, as a rule, even although their syphilis may be entirely latent. There are three special types which he looks for, infants under 6 months, infants between 9 months and 2 years, and children 8 years old and upward. In young infants the head (skull and face) is round like a ball, as if it had been turned in a lathe; the complexion is a light coffee-color, and the child usually snuffles. One or more palpable lymph-glands can be detected, especially at the lower end of the internal sulcus of the biceps. Goldreich found one or more enlarged lymph-glands in 83 to 90 per cent. of his cases. Quite often the spleen and liver are also enlarged. Infants over 9 months old all display more or less rachitis and the pallor is striking, sometimes with a touch of yellow. The skull is usually large, either from moderate hydrocephalus or excessive bone growth at certain points (tubera) or diffuse with a deep groove along the sagittal suture. If the coronal suture is as if hollowed out too, the grooves cross and make four protruding regions. Other characteristic features are the broad flat nose and the fine radiating scars on the lips, relics of torn infiltrations at the margin of the lips. The cubital lymph-glands, spleen and liver are liable to be enlarged.

By the age of 8 the face forms an equilateral triangle, the point at the chin. The broad overhanging brow causes the eyes to seem sunken in; the face tapers downward owing to the shallowness of the upper jaw and the small mouth. The lips are small, pale and drawn up by the fine radiating scars; often scars left by specific eruptions can be detected near by. The nose has grown larger in proportion buf still is of the suspicious flat, broad type with exposed nostrils. The grooves along the sutures are occasionally still evident but Hutchinson teeth are comparatively rare. Of the accessible lymph-glands the cubital may be found still enlarged. The children are pale and usually undernourished and are backward in their physical development as a whole. Among

ninety-four children representing these three types but with no actual manifestations of syphilis, the Wassermann was positive in 67 per cent. Transitional types are common. In a number of cases merely the facts that the children did not seem to be thriving on breast milk and that the cubital glands were enlarged suggested possible syphilis, and a tentative course of specific treatment for syphilis was followed by marked improvement.

51. **Treatment of Gastric and Duodenal Ulcer by Combating Hypersecretion.**—Wolff found hyperacidity evident in 51.8 per cent. of 56 cases of gastric ulcer and hypersecretion in 15.2 per cent., both together in 66 per cent. The proportion was even higher in 14 cases of duodenal ulcer, over 78.6 per cent. showing hypersecretion plus hyperacidity. This discovery of hypersecretion in two-thirds of the gastric ulcer cases and in three-fourths of the duodenal cases emphasizes the necessity in treating gastric or duodenal ulcer for measures to combat hypersecretion and hyperacidity, chief among which he lists emulsified fats, butter and cream, supplemented by atropin and all other measures useful in controlling excessive secretion. (Compare with abstract 64 in THE JOURNAL, October 17, p. 1429. Wolff has been working with Strauss.)

54. **Fracture of Lumbar Vertebral Transverse Process.**—The possibility of a fracture of this kind should always be considered when there are complaints of pain in the abdomen or lumbar region after lifting a heavy weight or trauma acting in this direction. Hoffmann reports a case: a man was pushing a boat into the water when he felt a sudden sharp pain in the lower part of the trunk, mostly to the left, and soon there was a swelling in the left inguinal region. This gradually subsided but the pains persisted, especially in the sacral region, on bending over, but examination showed nothing abnormal until roentgenoscopy revealed that the five transverse processes in the lumbar region had been fractured. The Roentgen findings were exactly like those Hoffmann had noted in a former case after lifting a heavy weight, bending forward. He gives illustrations of the conditions, traction from the muscles readily explaining the fracture. The only reason they do not fracture oftener is because the traction is perpendicular in the erect position and the broadest diameter of the transverse process then takes the strain. In the nine cases of the kind on record, including the one here reported, the first and second lumbar processes were fractured in four; the third in six; the fourth and fifth in two cases. The pain in the abdomen complained of at first in every case is due to irritation of trunk nerves from pressure or the hematoma. There is usually also a transient reflex rigidity of the abdominal wall from the same cause. There may even be sharp pain on pressure of the psoas which may suggest appendicitis if the trouble is on the right side. Other symptoms are local tenderness in the lumbar region on pressure from behind, and bending is painful. The disturbances may all subside in time but if they keep up from the pressure of callus or dislocated fragments, the disturbing element mus. be cut out. Such cases probably were labeled traumatic neuroses or the like before the Roentgen rays explained them.

55. **Vincent's Angina Plus Diphtheria.**—Reiche tabulates the details of twenty-three cases with the clinical and bacteriologic picture alone of the Plaut-Vincent angina, but diphtheria bacilli were found also in the throat. They did not modify the clinical picture in the least, however. Three of the patients were between 4 and 5 years old, one was 10, the others from 14 to 26 years old. Four had had diphtheria from one to nine years previously. Of the eighteen adults only two had a febrile temperature and one of these was the only one who had no spirilla. The other, a child of 4, developed severe fatal diphtheria of the tonsils after the angina had cleared up. It was most pronounced on the tonsil spared by the Vincent angina. In two other cases the angina and true diphtheria developed together and both ran a typical course; the patients were both 20 years old and only one recovered. The other developed pneumonia and died four weeks after the first symptoms of trouble. Antitoxin had been injected the fourth day but did not seem to modify the disease. In two other cases patients with the Vincent angina became infected with diphtheria while in the hospital. These were the only ones that contracted diphtheria out of fifty with the Vincent angina erroneously admitted to the diphtheria ward; they were transferred to another ward as soon as the bacteriologic examination had shown the absence of diphtheria bacilli. The diphtheria ran an exceptionally mild course. The first mentioned group were evidently diphtheria bacilli-carriers, but there was no suspicion of this until the throat happened to be casually examined for another throat affection. The presence of the diphtheria bacilli did not seem to aggravate it or superpose true diphtheria except in three out of the total twenty-five cases.

57. **Suicide with Potassium Permanganate.**—A woman of 37 took 10 gm. of potassium permanganate in solid form and died the fourth day. When seen an hour after she had taken the drug there was no cyanosis but the breathing was very irregular, with pauses up to twenty seconds, during which the pulse dropped from 72 to 44, but the heart action kept good. Apnea has not been mentioned before as a symptom of poisoning from the drug. It subsided with the signs of acute intoxication and death was not due directly to the drug but to the complications, as in the two other cases of the kind on record, the corroding action of the chemical on the throat entailing phlegmons in the neck and pneumonia.

64. **Examination of the Placenta.**—When scraps of decidua come away with the placenta, they may protrude above its level like small tumors, and there may be corresponding small depressions when scraps of the placenta stick to the wall of the uterus. By examining the vessels at the edge of the placenta it is possible to detect the presence of a supernumerary placenta as a placenta succenturiata always has two arteries and one vein at least running to it from the main placenta, and these vessels break off if the other does not come away with it. A single torn off vessel does not necessarily indicate a supernumerary placenta; it may be merely a vessel which turned back on its course at the edge of the placenta. When a defect in the surface seems to indicate that part of the placenta is still adhering to the uterus wall, especially when a torn off vessel can be seen in the depths of the defect, certainty as to the significance of this is obtained by placing the placenta on a smooth surface, the maternal side up. The tip of a syringe containing milk is then introduced into the umbilical vein at one side, and milk is pumped into the vein. If the placenta is all there, no milk escapes at any point as the fetal circulation is in a closed vascular system. The placenta becomes distended with the milk but not a drop appears on its surface if it is intact. If not, the milk pours out of the torn vessel and this is at once a guide for further management of the case.

Münchener medizinische Wochenschrift, Berlin

September 8, LXI, No. 36, pp. 1897-1928

67 Experimental Proof of Occurrence of Protective Ferments under Various Conditions. (Die experimentellen Beweise für das Vorkommen von Abwehrfermenten unter verschiedenen Bedingungen.) E. Abderhalden.

68 Differentiation of the Three Genera Cladothrix, Streptothrix and Actinomyces. W. Rullmann.

69 Experiences with Spinal Anesthesia. (Lumbalanästhesie.) Gfroerer.

70 Causes of Death with Aneurysm of the Aorta. Pohrt.

71 Salvarsan and Soft Chancre. (Darf bei weichen Schankergeschwüren prophylaktisch Salvarsan angewandt werden?). H. Müller.

72 Prophylaxis and Treatment of Dysentery in the Field. (Ruhr im Felde.) A. Schmidt.

73 Injury of the Intestines from Contusion. (Stumpfe Darmverletzungen.) Lobenhoffer.

74 Combating Tuberculosis Among the Troops at the Front. (Bekämpfung der Tuberkulose in der Feldarmee.) A. Mayer.

75 Principles for Treatment of Gunshot Wounds. (Einige wichtige Grundsätze zur Behandlung der Schusswunden.) E. Graser and M. Kirschner.

76 Carbon Monoxid Poisoning on Steamship. (Schwere Kohlenäuregiftung an Bord eines Lloyddampfers.) Brausewetter.

77 Compression with Rubber Sponge to Arrest Bleeding from Gunshot Wounds. (Gummischwammkompression gegen Schussblutungen.) Werner.

Therapeutische Monatshefte, Berlin

September, XXVIII, No. 9, pp. 609-640

78 *Practical Obstetrics. (Praktische Ergebnisse der Geburtshilfe.) J. Hirsch.

79 *Inherited Syphilis Does Not Get Proper Treatment. (Die heutige unzureichende Behandlung der Lues congenita.) E. Welde.
80 Technic for Intravenous Injection of Colloidal Silver. (Was für kolloidales Silber wird intravenös injiziert?) J. Voigt.

78. **Recent Progress in Obstetrics.**—Hirsch remarks that the last few years have witnessed almost a revolution in favor of expectant management of childbirth. Various factors have contributed to this, among them the discovery of the action of hypophysis extract in stimulating the uterus to contract forcibly. It acts more rapidly than ergot, but its effect is less durable. The dose of ergot required to start the uterus to contracting is dangerously near the tetany dose, so that it is best to reserve ergot for the third stage of labor. Another recent acquisition is the appreciation of the fact that the height of the contraction ring is usually an index of the degree of dilatation of the os uteri. This can be felt from the outside during a labor contraction, the bladder empty. When the contraction ring is found four fingerbreadths above the symphysis, the os is fully dilated; with two fingerbreadths, it is open only to about the size of a 5 mark piece. This sign can be relied on, he declares; the only difficulty is that it is not always possible for the woman to empty her bladder. To draw the urine artificially is an internal maneuver which is just what we are trying to avoid. [Unterberger found this sign fail in only 5 per cent. of 300 women examined and the findings controlled by other means. The incorrect findings were explained in some instances by the fact that the bladder had not been emptied; only in three cases did the test give puzzling false findings. The gradual ascent of the contraction ring during normal labor thus enables us to supervise the course of the dilatation of the cervix. When it is completely open the contraction ring can be felt about four fingerbreadths above the symphysis, and it always lies across, he says, never slanting. Hoehne has found the ascent of the contraction ring especially valuable in warning of impending trouble, unfavorable presentation or overstretching of the lower segment of the uterus. Internal examination is necessary then to ascertain the true condition, but the rise of the contraction ring far above the symphysis gives the warning signal. This sign was first taught by Schatz in 1883, but its value has only recently been appreciated as a means of avoiding the necessity for internal examination.] In regard to puerperal fever, Hirsch says that progress has been along the lines of beginning to combat it early and protect the patient against local irritation. It has been noticed also that puerperal fever is liable to recur at the next pregnancy especially if the interval is short. It might be safer therefore to postpone another conception until the woman's defensive forces have finally destroyed any germs left behind.

79. **Prevailing Inadequate Treatment of Inherited Syphilis.**—Welde says that systematic reexamination of children treated with salvarsan has shown that it often transforms a positive into a negative Wassermann reaction. Persevering treatment is necessary for this, however, as a rule; the danger that a child might be overtreated is far outbalanced by the danger otherwise of inadequate treatment. When the history of children with congenital syphilis is traced into later life, the conclusion seems inevitable that, almost without exception, the treatment applied stopped considerably short of actually curing the child. When the Wassermann test is applied the proportion of the uncured is found appallingly high. Of 396 infants treated for congenital syphilis in Heubner's service at the Berlin Charité he was able to trace the later history of 200 of the children: 94 died in the hospital and 10 soon after dismissal and 14 died later of measles, etc. Of the remaining 82, he was able to examine 36, and found specific evidences of syphilis in 27. Only 9 were apparently healthy, with negative Wassermann.

Many of the children had been brought for only a single treatment; only 13 of the 296 policlinic cases were under observation for two or three years. He urges physicians generally to keep track of child patients given salvarsan or other treatment. The prognosis of pemphigus, etc., has become more favorable since the introduction of salvarsan but whether on the whole it is superior to mercury for inherited syphilis is still a question. Proper nourishment is as important as medicinal treatment, he insists, and the recent progress in infant feeding has been of great benefit for babies with the syphilitic taint. Last and far from least, he emphasizes the necessity for warding off other infections from these children. An epidemic of influenza sweeps them away by scores. This is an additional reason for organizing special institutions for children with inherited syphilis. They can be more easily protected against other infections while treatment can be systematic and adequate.

He is convinced that more careful examination of infants will reduce the number of cases of "tardy inherited syphilis," and permit treatment before irreparable lesions are installed. Since the Wassermann test has been systematically applied in asylums for the blind, crippled, deaf-mutes and imbecile, an unexpectedly large percentage of syphilitics has been discovered, as also in children's hospitals, etc. If a child coughs, the mother fears tuberculosis and takes the child to be examined by a physician, but it may be covered with a syphilitic eruption without suggesting to the mother that this is anything but "hives." Even if the mother suspects syphilis she thinks the child is doomed and that there is no use in contending against this. Education of the public is thus a vital necessity in this line. Welde urges that the state should seek out and cure early the children with inherited syphilis; this would release sums now devoted to maintenance of asylums for feeble-minded, etc. An important argument for the necessity of this is that the syphilitic infants are liable to infect healthy nurses; he has known of five cases in the last two years. The plan he advocates is that as soon as the inherited syphilis is discovered, the child should be given vigorous treatment in a special institution for a year, and then be sent home but kept under medical supervision and be sought out at home at regular intervals, and never lost track of. The parents should be held responsible for repetition of the course of treatment as the medical inspector reports that it is needed.

Therapie der Gegenwart, Berlin

August, LV, No. 8, pp. 337-384

81 *Pneumothorax Treatment of Bronchiectasia. W. Zinn.
82 *Chronically Weak Circulation. (Chronische Kreislaufinsuffizienz.) J. Pick.
83 *Chronic Pyelitis. M. Fritz.
84 *Extra-Uterine Pregnancy with Living Child at Term. B. Rewald.

September, LV, No. 9, pp. 385-408

85 The Postgraduate Course for Volunteer Army Surgeons. (Bericht über den Orientierungskurs für freiwillige Kriegsärzte.) A. Paasche.
86 *Treatment of Erysipelas. J. Arneth.
87 *Prophylaxis and Treatment of Typhoid. (Bekämpfung des Abdominaltyphus.) F. Neufeld.
88 War, Food and Alcohol. B. Laquer.
89 Consulting Surgeons at the Front. (Ueber die Stellung der konsultierenden Chirurgen des Feldheeres.) Stromeyer.

81. **Pneumothorax in Treatment of Bronchiectasia.**—Zinn reports three cases which encourage the hope that artificially induced pneumothorax may have a future in treatment of bronchiectasia. It is certainly logical, and if done before the tissues have become hopelessly rigid there is prospect of a complete cure. Even if this is not possible, enough collapse may be realized to amount to a clinical cure as long as the compression is kept up. In this case the pneumothorax may have to be maintained indefinitely as in a case of this type reported. The technic is the same as for compression of the tuberculous lung. The benefit from the pneumothorax was so prompt and permanent that he was almost inclined to doubt his diagnosis at first. The course of treatment need not be so long as with pulmonary tuberculosis (two months, three and five in his three cases). Therapeutic pneumothorax can be induced without harm in weak patients if done cautiously. Even bilateral bronchiectasia does not contra-indicate the method, taking one side at a time.

82. **Underpressure Procedures in Treatment of Chronic Cardiovascular Insufficiency.**—Pick recalls that the circulation is a physical process and hence can be aided by physical measures when it lags at any point. This is certainly more logical than to look to drugs for aid. He has found negative pressure procedures very useful. They start the blood to flowing from the periphery to the lungs. The full atmo-

V. 191

spheric pressure is felt at the periphery while the pressure in the lungs is much below this. The blood consequently pours inward. This relieves the right heart and sustains those factors in the circulation which break down the most readily—parts which normally have to do two and a half times as much work as other parts.

He cites as an illustration of the benefit from systematic underpressure procedures in chronic insufficiency on the part of the circulatory apparatus the case of a man of 36 who had suffered for twenty years from what was labeled neurasthenia. His disturbances were so severe at times that he was unable to attend to business. The heart sounds were faint but pure, the pulse wave very small. Pick diagnosed the case as too little blood for the patient's size and weight; it did not reach the heart fast enough. Pick had him breathe in the underpressure apparatus three times a day for ten or twenty minutes at a time, arranging it for a negative pressure of 20 or 25 cm. water. By the second day there was considerable reaction, palpitations and vertigo, and then the condition improved remarkably and the patient was soon able to return to business with new zest in life. His supposed neurasthenia thus proved to be merely disturbances from chronic insufficiency on the part of the circulation. The tissues, especially the nerves, did not get enough blood to nourish them as the volume was small and the force to pump it into the lungs was inadequate. By starting a vigorous pumping process three times a day the forces were trained to do the work better and the nervous system received proper nourishment and recuperated throughout. Even if the former symptoms should return later, the benefit already realized during the months to date has been a great gain. The "neurasthenic" symptoms had included insomnia, distress, restlessness, palpitations, oppression, vertigo and loss of the senses of smell and taste. The return of the sense of smell the fifth day of the underpressure treatment was followed in a few days by return of the sense of taste. This return of these special senses has been frequently observed in his experience with cases of this kind; the starved nerves started to work again as soon as they got food.

83. **Chronic Pyelitis.**—Fritz states that he has encountered 161 cases of pure chronic pyelitis without participation of the parenchyma of the kidney, among his 1,800 urologic cases at the Wildungen spa. The pyelitis may exist for years on one side without the other becoming affected, and if it does, it seems to be traceable to the same primary source of infection as the first one. This is evidenced especially in the cases in which one kidney is removed as a prophylactic measure and months or years later the other kidney develops pyelitis too. The first kidney involved may recover and keep healthy while the second later in life may develop pyelitis. Treatment in acute cases or acute relapses includes regulation of the bowels and drinking large amounts of fluid (tea, lemonade or mineral water). He has never seen much benefit from hexamethylenamin, etc.

The primary source of the infection must be sought and cured. In the chronic cases copious fluid intake is also necessary but if the pyelitis persists, after the kidneys have been flushed in this way, local treatment is indispensable. His nine years of experience with local treatment have demonstrated its usefulness and harmlessness with aseptic precautions. The main point is to assume that the bladder always contains pathogenic germs which are liable to be carried up into the kidney pelvis. Boric acid is not strong enough to kill them, so he uses a solution of mercuric oxycyanid (Hydrarg. oxycyan.) to fill the bladder, and then rinses out the kidney pelvis with a stronger solution (1 to 2,000) until the fluid comes away clear. He then injects a 1 to 200 solution of collargol to be retained. The pyelitis may take long to heal, but with pure pyelitis a cure may always be counted on if the urine gets an outlet by systematic catheterization of the ureter. He thinks the mechanical influence of the catheterization is at least as important as the medication. Even when there have long been severe symptoms and the general health is materially impaired this combination local treatment should be given a persevering trial before considering nephrectomy.

84. **Extra-Uterine Pregnancy with Viable Child.**—Essen has compiled twenty-five additional cases since Sittner's compilation of 142 in 1903. The list includes a case from his own practice, a primipara of 30 at term. The breech of the fetus could be palpated in the left lower abdomen, the head in the right epigastrium, the back forward; the heart sounds were audible to the right of the umbilicus. The child was thus unusually high in the abdomen and the cervix was not dilated. During the course of pregnancy there had been occasional severe pains in the abdomen and back, returning at times every day, followed by long intervals of freedom from pain. There had been pain and hemorrhage for one day the second month but there were no pains from the third to the ninth month. They then returned extremely severe, like labor pains. The uterus was found to be empty and a normal girl baby, 51 cm. long, was delivered through an abdominal incision below a Momburg tube constricting the waist to prevent excessive loss of blood.

Four physicians had examined the woman superficially during the pregnancy but only one suspected extra-uterine pregnancy and advised an operation. If the history of the case had been heeded none could have overlooked the extra-uterine location of the fetus. There is usually bleeding for one day to several weeks and the hemorrhage is always accompanied with pain. This is a striking symptom and is never absent with early complications. In 277 cases of extra-uterine pregnancy there was pain in all but thirteen cases. The pain generally comes on suddenly and is severe, sometimes on one side only and radiating into the legs. As the pregnancy progresses, the pains become less severe but more persisting; they are due to interference with neighboring organs. Pains like those of labor may occur from accumulation of secretions in the uterus or expulsion of decidua or actual colic in the uterus. If the fetus lies free in the abdominal cavity, its movements may cause intolerable pain. In the early stages the pregnancy may be suspected from the livid discoloration of the entrance to the vagina. Expulsion of decidua was known in only 22 of the 277 cases, and in 5 not until the third to fifth day after the operation. In the case reported the placenta was twice the normal size and in three lobes; one presented toward the left ilium, one to the mesocolon and the third to loops of small intestine. The membranes ruptured as the child was being extracted and a number of bleeding vessels had to be ligated. The patient was able to be up in less than a month. The child is now five years old, normal and healthy.

86. **Erysipelas.**—Arneth reviews his experience with several hundred cases of erysipelas. He has encountered a few rapidly fatal cases, among them that of a healthy man between 30 and 40 who died eight days after the onset of severe erysipelas; staphylococci were found in pure cultures in the tissues. In another case a healthy woman of 46 developed erysipelas after removal of a small dermoid cyst on the arm. The erysipelas spread over the whole body and fatal paralysis of the heart developed. In such severe cases all treatment is futile, and in the mild cases spontaneous recovery is the rule whatever treatment is applied. It is important however to restrict the spread of the erysipelas and he has never found anything so effectual for this as painting the region and vicinity with a 5 per cent. oil solution of phenol. This is applied three or four times a day, leaving the area uncovered all the time. There is no caustic action from the phenol and the tissues are not irritated as by application of salves or dressings. The thin coating of oil softens the skin and works its way in; it relieves the pain and tension and by its anesthetic action tends to subdue the inflammation. In his years of experience with this carbolized-oil treatment he has never witnessed any signs of intoxication from it, and it does not stain the linen. This principle of refraining from irritating procedures and anything that might force the germs into the depths of the tissues, he thinks, should be followed in treatment of all suppurative processes. He refrains from touching even a blister, and never tries to cleanse the erysipelas region until several days after all signs of inflammation have subsided. Then he clears off

with olive oil any loose skin, not permitting water for some time yet. Otherwise there is danger of the process flaring up again; still virulent germs might easily be mobilized by any manipulations of the kind. He reviews numerous other methods of treating erysipelas as practiced by about fifty other clinicians, but thinks the phenolized oil surpasses them all in efficiency. Treatment can be only symptomatic but everything that builds up the general condition is a help, sustaining the heart, possibly also whipping up the neutrophil leukocytes. He remarks that it is odd that the diseases with pronounced neutrophil leukocytosis, pneumonia, diphtheria, tonsillitis and erysipelas, do not immunize against future attacks, but instances are known of complete recovery from leukemia after intercurrent erysipelas. Glaser has reported a case of severe dropsy with subacute nephritis in a boy of 12 who was permanently cured after an attack of erysipelas.

87. **Prophylaxis of Typhoid.**—Neufeld states that with all the efforts to exterminate typhoid in the protected area in southwestern Prussia in the last ten years the disease has not been eradicated. The number of cases has dropped from 3,487 in 1904 to 1,097 in 1913. The persistence of the disease is due in large measure, he thinks, to the early contact infection of others occurring during the incubation stage. Experience has shown that washing the hands after defecation and before eating is perhaps the most important prophylactic measure. If all could be trained to do this systematically, many illnesses would be saved, not only typhoid but various other diseases.

Zentralblatt für Chirurgie, Leipsic

September 12, XLI, No. 37, pp. 1465-1488

90 *Permanent Diversion of Fluid with Ascites. (Zur Dauerdrainage bei Ascites.) A. Oberst.

90. **Continuous Drainage of Ascites.**—After the fluid has been drawn, the skin is always relaxed and Oberst cuts a flap from it, leaving half of the flap still attached to the subcutaneous tissues. The other half is dissected loose and is worked through a small laparotomy incision down into the abdominal cavity. The skin is then sutured over it. The interposition of the skin flap in the incision prevents its growing together, and thus a constant communication is maintained between the abdominal cavity and the subcutaneous cellular tissue permitting fluid to drain freely into it. Oberst gives illustrations of four modifications of the principle involved.

Zentralblatt für Gynäkologie, Leipsic

September 12, XXXVIII, No. 37, pp. 1233-1248

91 *Dangers of Intra-Uterine Pessary. (Ueber die Gefahren des Intrauterinstiftes.) E. Opitz.

91. **Dangers of Intra-Uterine Pessary.**—Opitz reports two cases in which a Fehling glass tube was introduced into the uterus as the women were sterile and longed for children. Fatal peritonitis developed in one case and severe inflammation in one ovary and tube in the other case, requiring several weeks of conservative measures in the hospital before it subsided. He ascribes the trouble in both cases to the intra-uterine pessary.

Gazzetta degli Ospedali e delle Cliniche, Milan

September 3, XXXV, No. 105, pp. 1105-1120

92 Difference in Blood Pressure on the Two Sides with Neuralgia. A. Campani.

September 10, No. 107, pp. 1137-1152

93 *Pneumonia Due to Staphylococcus Albus. C. B. Farmachidis.

September 13, No. 108, pp. 1153-1168

94 Transvesical Prostatectomy: Three Cases. (Operazione del Freyer nella cura dell'ipertrofia prostatica.) O. Ortali.

93. **Staphylococcus Pneumonia.**—The patient was a man of 39; both the right lung and the pleura were involved and there was a pleural effusion. The crisis came the eighth day and the man started on a favorable convalescence but this was interrupted in a day or so by a return of pleuropneumonia in a severer form accompanied by symptoms indicating irritation of the meninges. The *Staphylococcus albus* was alone cultivated from the pleural effusion and from the blood-stream. The delirium subsided by the twelfth day from his first symptoms and rapid recovery followed.

Brazil-Medico, Rio de Janeiro

August 15, XXVIII, No. 31, pp. 297-306

95 Large Aneurysm of the Descending Aorta Protruding in the Back. F. Luz.

August 22, No. 32, pp. 307-316

96 Guiding Treatment of Syphilis by the Wassermann Reaction. (Do criterio scientifico no tratamento da syphilis pela reacção de Wassermann.) D. Madeira.

Hospitalstidende, Copenhagen

September 16, LVII, No. 37, pp. 1137-1168

97 *Juvenile Deforming Osteochondritis; Five Cases. (Fem Tilfælde af Calvé—Perthes Sygdom.) K. Michelsen.

97. **Juvenile Deforming Osteochondritis.**—The Roentgen findings and the negative tuberculin skin reaction are the criteria which distinguish a hip-joint affection described by Calvé (1910) and Perthes (1913). (It was described in these columns May 2, 1914, p. 1444.) Michelsen here reports with illustrations five cases some of which date from before this, and which he had already recognized as something apart from the general run of hip-joint diseases. He thinks that it is the same as Köhler's disease only that the localization is different. There is no doubt that it has frequently been erroneously diagnosed as a tuberculous process. Massage to prevent atrophy of the muscle should accompany the immobilization of the joint called for by the severe changes found in the bone.

Ugeskrift for Læger, Copenhagen

September 10, LXXVI, No. 37, pp. 1579-1626

98 *Operations on Tendons. (Sencsutur og Senetransplantation.) C. D. Bartels and J. Jensen.

99 *Roentgen Treatment of Superficial Cancer. (Om Røntgenbehandling af hudkræft.) J. Nordentoft. Commenced in No. 36.

September 17, No. 38, pp. 1627-1654

100 Cancer in the Ear; Three Cases. (Om Oeregangscarcinom.) E. A. Hallas.

101 Pseudomyxoma in the Peritoneum of Appendicitic Origin. H. S. Billmann.

98. **Operations on Tendons.**—The clinical and experimental research reported demonstrates that a severed tendon will heal after suture without immobilization, and healing occurs even sooner and more perfectly when the part is exercised. The histologic findings at various intervals after the experiments on seventy rabbits are described in detail—all confirming the prompt and complete restoration of approximately normal conditions when the part was used from the first. The lessons learned from this research were advantageously applied to a girl of 10 to correct contracture of the finger. The autoplastic transplantation was hampered by considerable scar tissue. This was resected and the tendon which had been bound down by adhesions was loosened up for 3 or 4 cm. The gap in the tendon, extending from the metacarpophalangeal articulation to a little beyond the first phalangeal joint, was bridged with a segment cut from the tendon of the palmaris longus. The transplant was embedded in the subcutaneous fat tissue and the wound healed by primary intention but opened again the tenth or twelfth day and scraps of fat and tendon tissue were expelled, after which all healed anew. Active and passive movements were begun the second and third day and kept up even while the necrotic tissue was being expelled. Now, a year since, the finger can be used fully and perfectly except for a trace of stiffness in the second phalangeal joint. In another case of contracted and stiff finger after a destructive felon he applied the same technic, only that to strengthen the tendon, prevent adhesions and promote its viability he wrapped the tendon in a strip of fascia from the forearm. It soon healed but two weeks later the whole of the implant was cast off. The scar tissue from the long median incision evidently afforded no possibility of nourishment for the implant. It would be better, on this account, to treat felons and phlegmons with several small side incisions rather than with one large one.

99. See abstract 89 in THE JOURNAL, Oct. 17, p. 1432.